

VOL. 2, No. 7

JULY

1915

GENERAL SCIENCE

THREE DAY LOAN

THE AGRICULTURAL GAZETTE OF CANADA

THE GROWING OF VEGETABLES

MATERIAL SUPPLIED TO BOYS' AND GIRLS' CLUBS
AND RURAL SCHOOLS

SUMMER SCHOOLS FOR TEACHERS

WHY SCHOOL GARDENS FAIL

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DEPARTMENT OF AGRICULTURE
OTTAWA, CANADA

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TO THE PRESS:

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TO AGRICULTURAL OFFICIALS:

PLEASE FORWARD PROMPTLY TO THE AGRICULTURAL GAZETTE ANNOUNCEMENTS, APPOINTMENTS, RESOLUTIONS AND OFFICIAL REPORTS.

MANUSCRIPT FOR THE FORTHCOMING NUMBER SHOULD REACH THE EDITOR NOT LATER THAN THE 10th OF THE PRECEDING MONTH.

VOL. 2, No. 7



July, 1915

DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE


The Agricultural Gazette of Canada

EDITOR · J. B. SPENCER, B.S.A.

Issued by direction of
THE HONOURABLE MARTIN BURRELL
Minister of Agriculture

OTTAWA
GOVERNMENT PRINTING BUREAU

1915



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The Agricultural Gazette

OF CANADA

VOL. II

JULY, 1915

No. 7

THE AGRICULTURAL GAZETTE of Canada is published monthly, in English and in French, by the Dominion Department of Agriculture. It is not intended for general circulation. A limited number of copies, however, are available to subscribers at \$1.00 per annum, or 10 cents per copy.

Subscriptions should be forwarded to the Editor, Agricultural Gazette, Ottawa.

THE RURAL SCHOOL AND THE FARM

IT is not so important to get those who have left the land to return as to hold those upon the soil who were born in the rural communities. In the past the education given in the rural school has been too academic. Now there is an awakening. As pointed out by Professor Newton of the Manitoba Agricultural College, in this issue, vocational efficiency is the watchword of the times. This is recognized in the agricultural extension service that is being carried on in all parts of Canada.

A form of extension work that gives promise of most valuable results is that carried on through the agency of boys' and girls' school clubs. These organizations are associated with the rural school fair, which, as stated in THE AGRICULTURAL GAZETTE for March, 1914, had a beginning in Canada about 1908 but did not get well under way until three years ago. In Ontario they are called Rural School Fair Associations; in Quebec, Potato Clubs, Poultry Clubs, Corn Clubs, etc.; in Manitoba, Boys' and Girls' Clubs; in British Columbia, Junior Institutes and so on, but the aims and objects are the same by whatever name they are recognized.

In preparation for a serious contest to be held at the end of the season, the members of these juvenile organizations raise various kinds of field and garden crops, and chickens. In this issue there appears a summary of the materials that have been supplied to the children in each province with instructions for getting the best results from them. And now, on tens of thousands of farms, even in remote districts, the race is on, to be continued with all the vigour of youth until the judges decide the awards.

The results of this season's work alone cannot be easily estimated. Parents will have introduced on their farms the choicest varieties of the various crops and will learn, even from the children, many lessons of value, but it is to the children themselves that the great advantage will come. Teachers testify to the increased interest of the club pupils in the work of the class room and in school attendance. In other words thrift is being developed at an impressionable age, not by the compulsion of a forthcoming examination, but by an inspiration that will lure and hold the intelligence of the children in the things of nature which will surely save most of them to the cause of agriculture and to the welfare of the nation.

PART I

Dominion Department of Agriculture

INFORMATION SUPPLIED BY OFFICIALS OF THE VARIOUS
BRANCHES REPRESENTED

THE AGRICULTURAL INSTRUCTION ACT

THE following is the form of agreement entered into by and between the Hon. Martin Burrell, Minister of Agriculture for Canada, and each of the nine provinces of the Dominion, under the provisions of THE AGRICULTURAL INSTRUCTION ACT of 1913, the appropriation to each province and the work to be undertaken by each during the fiscal year 1915-16:—

FORM OF AGREEMENT

MEMORANDUM OF AGREEMENT made and entered into by and between the Honourable

Minister of Agriculture for Canada, hereunto authorized by Order of His bearing date the day of 19

Party of the First Part;

AND

The Government of the Province of herein represented by the Honourable

for said Province, hereunto authorized by Order of His Honour The Lieutenant-Governor of said Province in Council, bearing date the day of 19

Party of the Second Part,

WHEREAS, under the terms of THE AGRICULTURAL INSTRUCTION ACT, for the purpose of aiding and advancing the farming industry by instruction in agriculture, there shall be paid out of the Consolidated Revenue Fund of Canada to said Province, during the Fiscal Year ending the 31st day of March, 19 , the sum of

and

WHEREAS, it is provided in said Act that the payment of said monies shall be conditional upon agreement between the Minister of Agriculture and the Government of said Province as to the terms, conditions and purposes within the meaning of said Act, upon and for which the payment of said monies is to be made and applied.

NOW, THEREFORE, the said parties have mutually agreed that the said monies shall be paid upon the terms and conditions and shall be applied to the purposes hereinafter set forth, to wit:—

1. One-half of said monies shall be paid to said Party of the Second Part by said Party of the First Part on the execution of these presents.

2. The balance of said monies shall be paid to said Party of the Second Part by said Party of the First Part, from time to time, upon

the latter being satisfied that said monies have been and are being properly expended for the purposes for which said monies were paid, as hereinafter provided.

3. The said Party of the First Part shall have at all times the right, through such officers of his Department, or other persons as he may designate or appoint for the purpose, to inspect any work carried on through the assistance of said monies, and may withhold any further payment on account of the same if, in his opinion, the conditions of this agreement are not being fulfilled.

4. The said monies shall be expended for and applied to the following purposes, the amount to be expended for each purpose being that set opposite the same, to wit:—

5. Should it hereafter at any time be determined that any of the amounts as aforesaid for any of the foregoing purposes can with advantage be varied, then by mutual consent of the parties hereto the same shall be varied accordingly.

6. The Party of the Second Part shall render to the Party of the First Part such statement of the expenditure of said monies as may be required from time to time by the said Party of the First Part.

7. It is understood that the monies granted by this agreement are intended to supplement the amounts devoted to agriculture by the Province itself, and are in no wise to be used for the purpose of curtailing the customary provincial expenditure in aid of agriculture.

IN WITNESS WHEREOF, the said Party of the First Part has hereunto set his hand and the Seal of said Department of Agriculture, at the City of Ottawa, this day
of 19 .

AND IN WITNESS WHEREOF, the said Party of the Second Part has hereunto set his hand and the Seal of the said Province, at the City of in said
Province, this day
of 19 .

FEDERAL APPROPRIATIONS TO THE PROVINCES UNDER THE AGRICULTURAL INSTRUCTION ACT, 1915-16

PRINCE EDWARD ISLAND

Capital Account—Equipment of offices of instructors, domestic science kitchens and laboratories.....	\$ 4,000.00
Director of Agricultural Instruction and Instructors.....	6,475.00
Instruction and Demonstration (including Short Courses):—	
Live stock.....	\$2,500
Poultry.....	300
Bee-keeping.....	100
Horticulture and Fruit growing.....	500
	<hr/>
	3,400.00
Women's work.....	3,190.00
Agricultural Instruction in Public and High Schools.....	10,050.00
Office assistance.....	1,500.00
Miscellaneous and contingencies.....	523.28
	<hr/>
Total.....	\$29,138.28

NOVA SCOTIA

Agricultural Colleges and Agricultural Schools:—

(a) Capital expenditure to pay interest and sinking fund on cost of construction of and furnishing for science building.... \$ 7,500

(b) Salaries and maintenance..... 20,000

\$27,500.00

Instructors, Directors, Superintendents and District Representatives—

Salaries and expenses.....

7,000.00

Instruction and Demonstration:—

Dairying..... 3,500

Poultry..... 1,600

Bee-keeping..... 400

Soils (including drainage and field crops)..... 2,300

Horticultural and Entomological Investigation..... 7,500

Fruit growing..... 1,200

Short Courses..... 3,000

19,500.00

Women's work (Women's Institutes, Home Makers' Clubs, Domestic Science, etc.).....

3,000.00

Bulletins, reports, circulars and miscellaneous printing.....

500.00

Instruction in Public and High Schools and in Normal Schools in Agriculture,

Nature Study, training of teachers and school gardens.....

10,000.00

Contingencies and miscellaneous.....

501.87

Total..... \$68,001.87

NEW BRUNSWICK

Agricultural Schools:—

(a) Capital expenditure..... \$10,000

(b) Salaries and maintenance..... 6,500

\$16,500.00

Instructors, Directors, Superintendents and District Representatives—

Salaries and expenses.....

18,000.00

Instruction and Demonstration:—

(a) Bee-keeping..... 500

(b) Silos and drainage..... 3,000

(c) Horticulture..... 500

(d) Short Courses..... 1,000

5,000.00

Women's work.....

3,000.00

Bulletins, reports, circulars and miscellaneous printing.....

500.00

Instruction in Public, High and Normal Schools, in Agriculture, Nature

Study and Domestic Science, training of teachers and school gardens....

10,000.00

Contingencies and miscellaneous.....

1,308.40

Total..... \$54,308.40

QUEBEC

Poultry.....	\$15,000.00
Arboriculture, Fruit growing.....	33,000.00
Bacon.....	12,000.00
Schools of Agriculture.....	60,000.00
Agricultural teaching in Academies, Rural Schools and Normal Schools.....	8,000.00
District Representatives, Agricultural Teachers—Agronomes.....	12,000.00
Experimental Union.....	2,000.00
Alfalfa and clover.....	4,000.00
Seed selection.....	4,500.00
Bee-keeping.....	9,000.00
Tobacco.....	3,500.00
Dairying.....	25,000.00
Drainage.....	3,000.00
Domestic Science.....	10,000.00
Maple sugar industry.....	4,000.00
Conferences, publications, etc.....	10,310.70
Total.....	\$215,310.70

ONTARIO

District Representatives.....	\$114,000.00
Agricultural College:—	
(a) Capital expenditure.....	81,413.64
(b) Salaries and expenses of additions to staff and maintenance.....	12,400.00
O. A. C. Short Courses, travelling and living expenses of winners of Acre Profit and Live Stock Competitions.....	1,500.00
To encourage Agriculture and Domestic Science in High, Public, Separate and Continuation Schools, to be available for grants and for travelling and living expenses of teachers and others in attendance at Short Courses or other educational gatherings, in addition to services, expenses and equipment, and to be paid out on the recommendation of the Department of Education.....	20,000.00
Educational work in connection with marketing farm products, including organization of co-operative societies, collection, printing and distribution of information on current prices and systems of marketing.....	6,000.00
Stock and seed judging, short courses and institute lecture work.....	6,500.00
Women's institute work, including courses in Cooking, Sewing, etc.....	2,000.00
Short Courses for fall fair and Field Crop Judges, including travelling and living expenses.....	3,000.00
Drainage work.....	6,200.00
Demonstrations and instruction in vegetable growing.....	3,000.00
Demonstration work on soils.....	2,000.00
Demonstration work in spraying, pruning and packing fruits.....	4,000.00
Work in bee-keeping.....	1,500.00
Equipment of laboratory and services of Assistant, Horticultural Experiment Station, Vineland Station.....	2,500.00
(Each appropriation to include services, expenses and equipment).	
Total.....	\$266,013.64

MANITOBA

Instructors, Directors and District Representatives (salaries and expenses) ..	\$27,000.00
Instruction and Demonstrations (including Short Courses)	20,000.00
Women's Work (Domestic Science).....	7,000.00
Boys' and Girls' Clubs.....	4,000.00
Bulletins and miscellaneous printing.....	2,000.00
Instruction in Public and High Schools.....	1,200.00
Contingencies and miscellaneous.....	3,221.31
Total.....	<u>\$64,421.31</u>

SASKATCHEWAN

College of Agriculture.....	\$22,800.00
Instructors, Directors, Superintendents and District Representatives— Salaries and expenses.....	27,600.00
Instruction and Demonstration in live stock, dairying, soils, crops, etc., including short courses.....	7,000.00
Women's work.....	4,500.00
Boys' and Girls' work.....	1,100.00
Bulletins and miscellaneous printing.....	3,000.00
Instruction in Public, High and Normal Schools in Agriculture, Nature Study and Domestic Science, school gardens, training of teachers.....	1,000.00
Contingencies and miscellaneous.....	1,011.04
Total.....	<u>\$68,011.04</u>

ALBERTA

Schools of Agriculture:—	
Maintenance.....	\$36,000
Equipment and buildings.....	2,000
	<u>\$38,000.00</u>
Provincial Instructors—Salaries and expenses:—	
Dairying.....	4,000.00
Instruction and Demonstration:—	
Demonstration farms.....	3,200
Demonstration trains.....	5,000
Dairying.....	3,000
	<u>11,200.00</u>
Women's work.....	1,500.00
Bulletins and publications.....	1,800.00
Miscellaneous.....	28.82
Total.....	<u>\$56,528.82</u>

BRITISH COLUMBIA

Appointment of Inspectors, Instructors, Directors, Superintendents, and District Representatives—Salaries and expenses.....	\$10,000.00
Farm demonstration and experimental work, field crop competitions, cow testing associations, poultry demonstration stations, co-operative variety tests.....	18,000.00
Horticultural demonstration stations, experimental work in vegetable growing, and greenhouse work, pathological and entomological investigation work, demonstration and experimental work in various cultural practices in fruits and vegetables.....	8,500.00
Boys' and Girls' field crop competitions, fairs, etc.....	2,000.00
Bulletins, reports, circulars and miscellaneous printing.....	2,000.00
Department of Education, towards agricultural instruction in Public, Normal and High Schools.....	15,000.00
Contingencies and miscellaneous, not included in above items.....	2,765.94
Total.....	\$58,265.94

STATEMENT OF FEDERAL APPROPRIATIONS TO THE PROVINCES UNDER THE AGRICULTURAL INSTRUCTION ACT, 1913-14, 1914-15 AND 1915-16

	1913-14	1914-15	1915-16
Prince Edward Island.....	\$26,529.85	\$27,832.81	\$29,138.28
Nova Scotia.....	54,288.45	61,144.45	68,001.87
New Brunswick.....	44,509.93	49,407.20	54,308.40
Quebec.....	159,482.40	187,409.16	215,310.70
Ontario.....	195,733.32	230,868.83	266,013.64
Manitoba.....	51,730.05	58,075.45	64,421.31
Saskatchewan.....	54,296.29	61,152.31	68,011.04
Alberta.....	46,094.95	51,310.41	56,528.82
British Columbia.....	47,334.76	52,799.38	58,265.94
Veterinary Colleges.....	20,000.00	20,000.00	20,000.00
Total.....	\$700,000.00	\$800,000.00	\$900,000.00

"A new nation, whose manners, without going through the slow process of civilization, takes pattern from the already refined ways of Europe, stands in need of the teachings of the grand school of nature, for agriculture is the basis on which all States are founded. It is, I admit with the economists, agriculture that forms the chief wealth of the social state, that teaches respect for property, and warns us that we are blind to our own interests whenever we interfere with those of other people; it is agriculture that clearly points out to us the indispensable correlation existing between the duties and the rights of men; by binding the tiller of the soil to his field, it binds men to their country. The first attempts at agriculture teach us the necessity of the division of labour, that marvellous source of all manifestations of public and private prosperity; agriculture goes deeply enough into the hearts and interests of men to induce them to see in a numerous family so much additional wealth; while, by teaching resignation, it subjects our intellect to the supreme and universal rules that regulate the world. From all this, I infer that agriculture alone can put a stop to revolutions, because it is the only pursuit that usefully employs all the capabilities of men, that imparts to them calmness and moderation without indifference, that inculcates respect for that experience that enables men to control the results of their new experiments; which, in short, furnishes constant proofs of the grand results to be obtained by simple regular work, and which neither hurries nor delays in anything."—*Comment of Prince de Talleyrand on agriculture while travelling in the United States in 1794. Memoirs of Prince de Talleyrand.*

THE LIVE STOCK BRANCH

A NEW MARKETS POLICY

A comprehensive markets propaganda is being undertaken by the Live Stock Branch. An explanation respecting the details of the policy follows:—

1. The Organization of an Intelligence System which shall provide for—

(a) Statistics of Animal Population and of Production.

Co-operation with the Census Branch of the Department of Trade and Commerce, and with the Provincial Departments of Agriculture in the collection and analysis of statistics of animal population. Gathering current data as to the exact situation in the country respecting breeding and feeding operations, the supply of feed, the condition of stock, when heavy marketing may be expected, the districts from which the largest supplies may be available and the districts in which a shortage exists.

(b) Information regarding the Home Market.

The collection of definite and reliable information regarding market demand in the several provinces of the Dominion, with particular reference to current prices in the leading market centres and to conditions governing interprovincial trade in meats and other live stock products.

(c) Information regarding the Foreign Market.

Through agents of the Branch, through the foreign service of the Department of Trade and Commerce and from such other sources as are available, the gathering of adequate statistics and data to make possible an

intelligent interpretation of trade conditions in foreign countries, exporting and importing, with the view of assisting our live stock interests to develop foreign trade, to adjust their operations to the requirement of foreign demand and to take advantage of such outlets as may, from time to time, appear for the profitable sale of live stock products.

(d) Distributing Information to the Producers.

The dissemination of this information to the producers in such an effective way that they may be able intelligently to anticipate market demands, to seize opportune periods for the profitable disposal of their stock, to adjust successfully their operations to the trade situation as developed by local and foreign requirements and to equalize production in the several provinces, thus providing against the alternate gluts and shortages which have in the past invariably tended to upset trade balances and defeat the expectations of the breeders.

2. The Organization of Farmers for Co-operative Action in the Sale of—

(a) Their Eggs and Poultry.

The successful demonstration given in Prince Edward Island, of the co-operative sale of eggs suggests the need and wisdom of extending the system now in operation to all the provinces of Canada and of its further elaboration as required by varying local conditions and in the development of interprovincial and foreign trade.

(b) Their Wool.

The policy to be pursued in this work must closely adhere to the principles followed during the past year, but it is hoped that means may be devised which shall secure to the growers the commercial advantages of deferred sale when the market warrants the holding of the product.

*(c) Their Lambs, Hogs and Cattle.

It is proposed to initiate the co-operative sale of live stock in accordance with the principles followed in the work already undertaken.

3. The Promotion of Sale by Grade and Payment according to Quality.

It is widely recognized that the sale of produce on a flat rate basis, for example in the case of hogs, invariably inflicts a penalty on the progressive farmer and in effect provides a premium for low grade goods. Evidence is not wanting that a well directed effort by the Department would favourably influence buyers and merchants toward an acceptance of standards and the rating of prices on a basis of market merit. It is the experience of the Branch that a movement in this direction is fundamental to any advance which may be made in improving quality and in increasing production.

4. The Co-operation of all Interests in the Development of our Live Stock Trade.

Under a Markets Policy, the Department may usefully endeavour to have itself recognized as a medium for the adjustment of differences between the producer, on the one hand, and the packing, transportation and financial interests, on the other, and an organization through which co-operation may be effected by these great industrial bodies in building up Canada's agricultural trade.

The Markets Policy of the Live Stock Branch, operated in accordance with the foregoing outline, will be administered under the immediate direction of Mr. H. S. Arkell, Assistant Live Stock Commissioner. The present organization of the Branch will be made use of to the fullest extent, the work being carried on through the Chiefs of the several divisions, the cattle, sheep and swine, and poultry propaganda falling to the charge respectively of Mr. R. S. Hamer, Mr. T. R. Arkell and Mr. W. A. Brown.

*It should be made clear that in the prosecution of this programme it is not expected or intended to involve the Department in any commercial obligation, the farmers' associations, as a matter of deliberate policy, assuming full and complete responsibility in the transaction of their own business and, ultimately, in the executive administration of their own organization.

ASSISTANCE TO WOOL GROWERS

THE Live Stock Branch is again assisting wool growers this year in the preparation and classification of their wool for market. Grading is being performed for sheepraisers' associations in every province but one, and in two of the western and one of the eastern provinces, organizations have been formed and applications for grading received therefrom, to include the

greater portion of the wool grown there. It is estimated that probably 2,000,000 pounds of wool will be prepared under the supervision of the Branch. The great increase of applications over last year tends to show the keen interest which farmers are now taking in Canada in the development upon a higher plane of the sheep and wool industry.

THE DOMINION EXPERIMENTAL FARMS

THE DIVISION OF ANIMAL HUSBANDRY

SOFT CHEESES

BY E. S. ARCHIBALD, B.A., B.S.A., DOMINION ANIMAL HUSBANDMAN

FOR a number of years previous to 1911 the milk produced on the Central Experimental Farm was manufactured into butter only, and the skim milk fed to calves or pigs. The disposal of the milk in this way during the ten years previous to that date, netted an average price of about \$1.65 per hundredweight of milk, allowing 20 cents per hundredweight for the value of skim milk. However, at this time it was deemed advisable by Mr. J. H. Grisdale, then Dominion Agriculturist, now Director Experimental Farms, to start some experimental work in the manufacture of soft cheeses, not only to introduce this subject in Canada, but also to use the largely increased milk production on this farm. The introduction of this work has had a very large influence. Many individual farmers, supplying creameries and cheese factories during part of the season, are now utilizing their milk for home cheese production during certain parts of the year when the factories are not in operation.

VARIETIES OF CHEESES

Quite a large variety of soft cheeses have been tried in this work. However, the two most marketable varieties which have been continued during the past four years are the Coulommier cheese and the Cream cheese. In addition to these soft cheeses considerable work has been done in the manufacturing of ten-pound Cheddar cheeses and other varieties of a similar kind. This work will be largely extended when

better facilities are at hand in a new dairy building which is anticipated.

ECONOMY TO MANUFACTURE

The cost of equipment for the manufacturing of either cream cheese or Coulommier cheese, is very limited. The equipment necessary for the production of cream cheese consists of a pail, ladle, huckaback towelling for straining, a small mould and press, salt, rennet, and a good dairy thermometer.

For marketing this cheese, it is wrapped in cheese cloth, then in good cream cheese parchment, and placed in a pasteboard carton.

The equipment for manufacturing the Coulommier cheese consists of a pail, ladle, drainage boards, a few sets of cheap, circular, double rings, salt, thermometer and rennet. For marketing this cheese, parchment paper and cartons are necessary.

Both of these cheeses are very popular in any of our city markets where tried, and no difficulty whatever is encountered in readily establishing a good market for the full capacity of our dairies.

METHOD OF MANUFACTURING

Space will not permit the details of the manufacturing of these cheeses; however, those interested are referred to the Annual Report of the Experimental Farms for 1911, and also to Exhibition Circulars Nos. 22 and 23, for such information.

It is sufficient to say that the cream cheese is manufactured from a thin cream, two gallons of which,

testing 16 per cent butter fat, will make 20 to 21 ounce cheeses.

The Coulommier cheese is a whole-milk cheese. One hundred pounds of whole milk testing about 4 per cent butter fat, together with the necessary rennet and salt, will produce 20 Coulommier cheeses, weighing approximately 16 ounces each.

MARKETING CHEESE

The cream cheese is exceedingly popular in the Eastern city markets and sells readily at 11 cents wholesale or 15 cents retail. The Coulommier cheese, which is a short-cured cheese, is not so popular amongst native Canadians, but Canadians of European extraction prefer

this to other cheese manufactured. The Coulommier cheese also sells quite readily at 11 cents wholesale and 15 cents each retail. There is no difficulty whatever in getting local merchants to handle large quantities of this at the wholesale prices.

During the fiscal year ending March 31st, 1915, there have been manufactured at the Central Experimental Farm dairy, an average of nearly 250 soft cheeses per week, composed of an average of about 220 cream cheeses and 30 Coulommier cheeses. This makes a total of over 11,000 cream cheeses per annum and over 1,500 Coulommier cheeses per annum. At no time was the demand for these cheeses fully satisfied.

THE DIVISION OF HORTICULTURE

FURTHER EXPERIMENTS WITH FIRE POTS IN PREVENTING FROST

BY M. B. DAVIS, B.S.A., ASSISTANT IN POMOLOGY

AT the Central Experimental Farm this spring, several different makes of orchard heaters or fire pots were tested out. At present (June 7), it is impossible to give exact data regarding the merits of these heaters, as they are still in use, so that the amount of oil still unburned cannot be accurately determined.

The heaters were divided into plots of the same size, and each make was charged up with all oil placed in them and a strict account of the number of hours each type burned was also kept. At the end of the season the amount of oil remaining in each type of heater will be credited back, and in this way the fuel consumption of the different makes can be determined.

Spring frosts were quite prevalent during May, and one or two nights were exceptionally severe, thus giving an excellent opportunity to test

the value of orchard heaters for different crops.

The heaters were tried on European grapes, apple trees, strawberries, and tomatoes with varying success.

PROTECTING EUROPEAN GRAPES

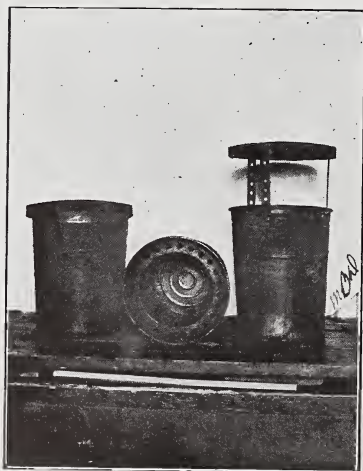
Heretofore the European grapes have been kept covered with their winter protection until after the middle of May; this spring, however, this vineyard was uncovered about May first and orchard heaters were placed through the vineyard to protect against frosts.

These heaters were lighted on several different occasions, on one of which the frost was exceptionally severe. The vines at the time of writing are well advanced and show no signs of frost injury, while on the night of May 27th, when four degrees of frost was recorded, clover just

outside the vineyard was killed. Heaters were used at the rate of one hundred and twenty-five per acre. As European grapes are known to be very tender, this seems to be conclusive evidence in favour of the orchard heaters, although it is unfortunate that there was no check plot to leave unheated.

STRAWBERRIES

In the strawberry patch, the heaters were used at the rate of one hundred and ten to the acre, and although the success here was not as great as in the vineyard, quite satisfactory results were obtained.



THE "COMPETITION" HEATER

From our experiments this spring it seems that for strawberries a much larger number of heaters is required, unless some means can be devised for controlling the air currents to prevent the heat rising. There seems to be little difficulty in raising the temperature a foot or so above the ground, but to actually raise the ground temperature on a severe night is a difficult problem. For instance, in one plot which was heated and which was in a very

cold location, the temperature at three feet from the ground was kept between thirty-two and thirty-nine degrees, while on the ground it seemed impossible to keep it above twenty-six degrees, which was the same as the outside area. In the other plots on the same night, both the ground and three foot temperatures were kept three degrees higher. As strawberry plants are right on the ground it will be readily understood how difficult it is to protect these from frost.

On the 28th of May, after the severe frost of the 27th, the strawberry bloom inside and outside of the heated area was closely examined and all injured blossoms counted. The same variety was used for comparison, and the results of the count showed an advantage in favour of the heated area as follows:

	Heated Area	Unheated Area
Per cent bloom injured.	30.3	60.2

This shows a difference of thirty per cent in favour of the heated area, or in other words the heated area had just one half as much injury as the unheated area. It might also be noted that the unheated area was in a more sheltered position than the heated area, the temperatures recorded there always being one or two degrees higher than the temperatures recorded in the heated area at the time of lighting.

TOMATOES

Tomato plants were brought through the night of May the 27th with some slight injury. Wherever the drooping leaves touched the ground they were nipped with frost, but upright plants came through uninjured. There was considerable injury, however, from plants being near the heaters, as it is impossible where the plants are only four feet apart to get them any farther than two feet from a heater, and, if the plants are tall, this means that the

top leaves are going to be singed with heat. Whether or not this injury will be sufficiently severe to permanently injure the plants remains to be seen, but just now they appear to be doing fairly well.

Tomato plants outside the heated area were over fifty per cent killed. As these will all be allowed to grow and ripen fruit, more data on this question will be obtained later.

It is thought that had a better grade of oil been used among the tomatoes no injury would have resulted from frost. While the attendants were at another part of the farm, several heaters boiled over and became extinguished, thus lowering the ground temperature for a few minutes to thirty degrees, but immediately upon relighting, this was raised again to thirty-four degrees.

In connection with this it may be mentioned that it was impossible to get the grade of oil required on this night, as the particular oil company stocking that brand was sold out. All other pots were filled with the better grade, and it was not until after this experience that it was

found out that there were two grades of oil on the place.

The oil is a heavy thick oil which burns without boiling over and which gets thicker as it burns down; the other, although apparently the same oil at the beginning, begins to get thin and boil over the longer it burns. This latter grade evidently contains a large percentage of water and is not fit for use in these orchard heaters.

An attempt to obtain exact data on these grades of oil will be made so as to be in a position to recommend to orchardists the proper kind of fuel oil to ask for.

USE OF SAP BUCKETS AS HEATERS

An ordinary sap bucket, such as is used for gathering maple sap, was tried out as an orchard heater with fairly satisfactory results. It was found necessary to apply a damper to the center of the large opening to control fuel consumption. Otherwise the heater, although a little extravagant in the use of fuel will serve very well in cases of emergency.

THE DIVISION OF BOTANY

MOVEMENT FOR THE IMPROVEMENT OF THE POTATO INDUSTRY

BY H. T. GÜSSOW, DOMINION BOTANIST

THE Hon. Minister of Agriculture has appointed Mr. G. C. Cunningham, B.S.A., and Mr. Paul A. Murphy, B.A., to assist the farmers of the Maritime Provinces in combating the diseases which attack their crops, particularly the potato crop.

Mr. Cunningham is well known among plant pathologists through his work on potato scab and club-root (finger-and-toe) of cabbages, turnips and other crucifers. He was raised near Guelph, Ontario, and received his college training at the Ontario Agricultural College and at

the University of Wisconsin. For the last five years he has been Associate Plant Pathologist at the Vermont Agricultural Experiment Station, where he worked on diseases of potatoes and other crops. During the year 1911-1912, he had charge of the departments of Plant Pathology and Bacteriology at the University of Vermont.

Mr. Murphy received his training in Dublin University and the Royal College of Science for Ireland, and he has had three years' experience in the investigations carried out on the diseases of potatoes by the Irish

Department of Agriculture, by whom he was employed. He was then awarded a travelling scholarship by the English Board of Agriculture to continue his studies along the same lines, and he has spent the last three years extending his knowledge of the subject in England, Germany and the United States.

The primary object is to help the farmers to produce larger crops of A. No. 1 seed potatoes, and to ensure for that seed the place in the market which its high quality deserves. Produce which is marketed under a guarantee of freedom from disease and purity is bound to obtain a higher price than could be otherwise secured. The Minister believes that such a course, if followed regularly for a few years, will give seed potatoes from these provinces an enviable position of superiority among buyers, and this is certain to increase the returns of the growers.

It is proposed to make an examination of the potato fields, first during the growing season and then at the time of harvest, to detect the presence of all diseases which depreciate the value of the crop by lowering the yield and reducing the price.

Those who wish to have the services of these men for any special purpose during the current season are asked to send a request to G. C. Cunningham, care of Experimental Station, Fredericton, N.B., for the provinces of New Brunswick, Nova Scotia and Quebec, and to Paul A. Murphy, Experimental Station, Charlottetown, for Prince Edward Island. These pathologists will be entirely at the service of the farmers of their respective provinces in assisting them to improve all their crops, as well as the potato, in yield and quality, and all inquiries concerning diseases will be gladly answered.

THE TOBACCO DIVISION

CHOICE OF VARIETIES AND TOPPING

BY F. CHARLAN, CHIEF

CANADIAN growers should endeavour to specialize in those varieties which are best adapted to the soil and climatic conditions of their districts. To find these varieties is one of the most pressing problems of the tobacco-growing industry.

In spite of recent difficulties between growers and manufacturers, an increasing quantity of domestic tobacco is being used every year. There has been no decrease in the demand for Ontario Burleys, and the flue-cured tobaccos, of the Virginian type, which are now being cultivated in South Essex, find a ready sale.

In Quebec, new markets have been found for certain varieties, such as the Comstock Spanish. There is now a demand for tobaccos of more

aromatic varieties, suitable for use as "fillers". There is also a demand for bright leaves, of the lightest possible texture, intended for light pipe tobaccos, or even for cigarette mixtures.

Complaints are made occasionally that the quality of Canadian tobacco is not always as good as it should be. Outside of negligence, possibly poor handling and unfavourable conditions of temperature, which may, in so many ways, injure the quality of a crop, are there not other factors to which the grower has not, up to the present, attached sufficient importance?

One of these unrecognized factors is, we believe, the use of unsuitable varieties. Not only should the choice of the variety be based upon the nature of the soil and climatic

conditions, but the methods of culture should vary with each variety according to the object sought, if the best results are to be obtained.

IN ONTARIO

In Ontario, fine and light coloured sandy soils, rather poor in vegetable matter, which, at certain points, form the border of Lake Erie, seem to be used more and more for the growing of flue-cured Virginian tobacco. This strain is also grown on some uplands that are found in the neighbourhood of Ruthven and Leamington. Coarser sands should be used exclusively for white Burley. The tobacco grown on such soils has generally a looser, more porous texture. It is suitable for manufacture into plugs, owing to a readiness to absorb juices. Good crops of seed leaves are obtained on heavier lands, containing a rather high percentage of clay, but the texture of these soils is, to a certain extent, modified by the presence of lime, which is found in rather large quantities in all the soils of Southern Ontario. In some parts seed leaves have been abandoned for strong tobaccos, fire cured (Green River Types). The latter are generally grown under contract for a stated length of time.

In Eastern Ontario, there are some large areas made up of fine, fertile and light-coloured sand, on which a White Burley with a finer, lighter and more elastic texture than the Burleys of Essex and Kent could be obtained. The results of the small number of trials made in this direction by the growers of the district have been most encouraging.

Before long, perhaps, Canadian manufacturers will come to Eastern Ontario (between Toronto and Ottawa), for their supply of light Burleys, for the manufacture of a number of pipe tobaccos and even of cigarettes. This territory of Eastern Ontario, also seems to be particularly well adapted for the growing of

large Seed Leaves which, although comparatively late, will have sufficient time to ripen before the early frosts and to cure before winter sets in. It should even be possible to obtain leaves with a finer and more elastic texture than in Southern Ontario, as the land does not appear to contain as much lime as in the latter district.

IN QUEBEC

In Quebec, it seems that the growing of tobacco should not be encouraged too far east, or too far north of Montreal. The greatest variety of soils is perhaps found in the centers on the north shore of the St. Lawrence—from the heavy and gravelly lands where Canelle is grown to the almost pure sands of Joliette, which are suited to the growing of Connecticut Seed Leaves. During the last few years, the Comstock variety has been grown on light loams, but this variety, after having enjoyed popularity for ten years or so, is now largely replaced by pipe tobaccos, of a larger size, for which the fineness of texture is not a consideration of first importance. Very likely, on account of the great demand, the growing of the Comstock was extended to heavy soils when it could not acquire sufficient size or fineness. Such soils are better suited for the growing of plug tobacco, such as Blue Pryor, and General Grant, which, unfortunately, ripen rather slowly.

The Tobacco Division is now endeavouring to introduce in the province of Quebec, a good type of "fillers" tobacco, sufficiently productive to be profitable at 15 cents per pound, and with sufficient aroma. Some interest has been shown in the Aurora. Requests have also been received regarding the Zimmer Spanish and the Pennsylvania Broad Leaf. Apparently the manufacturer having made up their minds to accept Canadian binders, are now looking for "fillers"

of the same source. The Quebec Cuban grown varieties have a pleasant aroma, but they are not sufficiently productive. The Brazilian strains never gave satisfactory results. We must therefore confine ourselves to some strains of the Ohio and to the Comstock Spanish.

For the supply of binders, the manufacturers can rely upon the district to the south of Montreal. But there are marked differences in the nature of the soils in this part of Canada and not all the growers can produce binders of good quality.

The choice of a variety, especially in Quebec, should not be governed by the demand of the time, but also by the nature of the soil of the parts of the farm where tobacco is to be grown. If a rotation is followed—and it has been repeatedly demonstrated that it is the only way to keep up the fertility of the soil—the growers will naturally be compelled, at times, to grow a tobacco for binders on light and deep loams with permeable sub-soils, or pipe tobacco on gray soils, rather heavy, sometimes even “fillers” tobacco if the season is not long enough in the district for the ripening of the large Seed Leafs, or of the Blue Pryor, or, again some Canadian tobacco; such as Tabac Rouge, Petit Havana, etc. The latter varieties are very profitable when planted close enough (2 feet x 1 foot) to give a good yield in weight. Under such conditions, most of the work has to be done by hand, therefore such varieties must necessarily be grown on a small scale, unless the grower has a numerous family.

But with any variety, an endeavour should be made to avoid the production of undersized tobacco. By undersized, is meant the leaves that have not had time to become large enough before harvesting to be used for manufacturing purposes. In most cases, not only are these tobaccos too small, but they are not ripe enough and do not cure properly.

With small varieties, such as Canelle, Tabac Rouge, Petit Havana, etc., no hesitation is possible. The number of leaves that should be left on each plant is rather limited, from six to eight. Topping should be done as soon as the flower cluster can be easily distinguished. There is no danger at this time of injuring the top leaf, and this leaf may become almost as large as the medium leaves.

TOPPING COMSTOCK

With the Comstock it is not quite so easy to ascertain, at topping time, the exact number of leaves that should be left on the plant. It is impossible to foresee the character of the season, whether it will be wet or dry, etc. In the latter case, if topping is done too low, that is to say, if the number of leaves remaining on the plant are too small, the product might be too thick. When the tobacco is intended for binders, topping should be done early, as soon as from thirteen to fourteen leaves can be counted on the plant after removing the terminal bud and the bottom leaves, the latter at a height from three to four inches from the soil up. In an average season, it is very seldom that fourteen leaves can be left on a plant of Comstock Spanish. Only the strongest and earliest plants can bear that number.

Ten days or two weeks after this preliminary topping, the work may be completed by reducing the number of the leaves to twelve or even less, according to the growth the plant has made in the interval. Then the plant is left to itself; except for the suckers which should be removed as they appear. In hot and comparatively dry weather, the sooner topping is done, the quicker the plant will ripen. For binders, the crop should be harvested before ripening is very advanced. Topping may be considered as satisfactory: (1) if the top leaf is fourteen inches

long or longer; (2) if this leaf is carried almost horizontally (any leaf carried vertically at the top of the plant should have been removed when topping).

In wet weather, after the last topping, the plants will start to grow and perhaps the leaves will become too large or too thick. In this case the only thing to do is to let the head suckers grow and remove them when the danger is past, or when it is judged that it is time to let the leaves ripen. In this case, the products will not be quite so elastic, but neither will they be so thick. If we were asked to state the limit of time at which topping should be done, for the Comstock, we would say the middle of July for early crops, and the beginning of August for later crops.

In the large pipe tobaccos, it is still more urgent to top early. Generally speaking, these are late varieties, and, as the ripening is greatly influenced by the date of topping, the sooner the latter is done, the sooner these strains may be harvested and protected from the frost. On the other hand, with such varieties, a large leaf is wanted more or less fine according to the uses to which it is put and according to the variety. Therefore, the manufacturing strains such as Blue Pryor, General Grant, etc., should be topped fairly low, leaving from ten

to twelve leaves according to the strength of the plant. The Connecticut seed leaves should be topped a little higher, but as much as possible at the end of July. In this way short leaves are avoided, and, a fact which is still more important, a better yield in weight is obtained, as with an equal number of leaves or even with a somewhat smaller number, the yield is always higher when topping is done early.

An exception might be made for some special tobacco, suitable for use as fillers as well as binders. This includes some varieties of Cuban with a long stem, and the leaves of which do not vary so much in size according to the position which they occupy on the stalk. In order to secure light tobaccos, topping should be done as late as possible and all the leaves which are not expected to be twelve inches long at harvest time should be removed.

Early topping is essential in the growing of Virginian tobacco. Only a comparatively small number of leaves are left on the plant and an effort should be made to have them all ripen at the same time, so as to obtain an uniform colour. As to the White Burleys, early topping is also necessary in order to hasten ripening and to reduce the rather large proportion of short, dark and thick leaves, which are complained of by the dealers.

EXPERIMENTAL FARM, BRANDON, MANITOBA

STEER FEEDING EXPERIMENT

AN experiment of exceptional interest in fattening steers has recently been completed at the Experimental Farm, Brandon, Man. Two carloads of steers were purchased last fall in the Winnipeg stock yards at 6 cents per pound. Expenses and shrinkage brought the price of the cattle up to \$6.46½ per cwt. on November 13th, 1914, the

day the experiment started. It was continued until May 24th, 1915, or for 191 days. The steers were divided into four lots as nearly equal in weight and quality as possible. Two lots were housed in box stalls and two were wintered outside, with an open shed for shelter. One of the inside lots had straw and corn ensilage as their coarse fodder; the

other had, at first, green oat hay and, later on, mixed grass hay. One of the outside lots had alfalfa as coarse fodder, and the other green oat and mixed hay, the same as the second inside lot. All four were given the same grain ration. Starting on two pounds per day of chopped oats, the ration was gradually increased to eight pounds per day, at which rate it remained the greater part of the winter. In finishing, corn, barley and oats formed the grain ration, which was gradually increased to fourteen pounds per day.

Following are the rates at which

the feed was charged up to the steers:

Oats.....	\$.60 per bus.
Barley.....	.70 " "
Corn.....	.86 " "
Hay (green oat).....	10.00 " ton
Hay (mixed grasses).....	10.00 " "
Hay (alfalfa).....	12.00 " "
Oat and barley straw.....	2.00 " "
Corn ensilage.....	3.00 " "

INSIDE AND OUTSIDE

As one of the lots wintered in the stable was fed exactly the same as one of the lots wintered outside, we have a direct comparison between the two methods. Following are a few of the figures obtained:

	Lot 1, Inside	Lot 2, Outside
First weight average, November 13th, 1914.....	896.8 lb.	897.4 lb.
Finished weight average, May 24th, 1915.....	1,258.8 "	1,211.5 "
Average gain in 191 days.....	362. "	314.1 "
Average gain per day.....	1.89 "	1.64 "
Average cost per steer at \$6.46 ½ per cwt.....	\$57.98	\$58.02
Average cost of feed per steer.....	39.04	39.04
Total average cost per steer.....	97.02	97.06
Average selling price at \$8.75 per cwt. with 5 per cent shrinkage.....	104.64	100.70
Average profit (labour and value of manure not counted).....	7.62	3.64
Average cost of 100 lb. gain.....	10.06	12.43

The foregoing would indicate that the most profitable method of treating cattle was to provide them with warm shelter. Straw and ensilage can be grown more cheaply than hay. If, by mixing it with corn ensilage, which can be grown in greater bulk per acre than any other fodder, as good results in feeding can be ob-

tained as from hay, beef production would be cheapened and the desirability of growing corn would be increased.

STRAW AND ENSILAGE VS. HAY

The two lots fed in the stable were used to test the latter proposition with the following result:

	Lot 1, Hay	Lot 2, Straw and Ensilage
First weight average, November 13, 1914.....	896.8 lb.	900.5 lb.
Finished weight average, May 24th, 1915.....	1,258.8 "	1,220 "
Average gain in 191 days.....	362. "	319.5 "
Average gain per day.....	1.9 "	1.67 "
Average cost per steer at \$6.46 ½ per cwt.....	\$57.98	\$58.22
Average cost of feed.....	37.04	35.31
Total average cost per steer.....	97.02	93.53
Average selling price per steer at \$8.75 per cwt. with 5 per cent shrinkage.....	104.64	101.41
Average profit per steer (labour and value of manure not counted).....	7.62	7.88
Average cost of 100 lb. gain.....	10.06	11.05

It will be noticed that the steers on straw and ensilage did not make quite as good gains as those on hay. But the cheapness of the feed made the profit per steer greater.

HAY VS. ALFALFA

The two lots that were fed out of doors were used to test ordinary kinds of hay and alfalfa. Lot No. 3 received green oat hay for part of

the time and a mixture of timothy and western rye grass the rest of the period. Lot No. 4 received alfalfa as their only coarse fodder. The results follow:

	Lot 3, Hay	Lot 4, Alfalfa
First weight average, November 13th, 1914.....	897.4 lb.	890.6 lb.
Finished weight average, May 24th, 1915.....	1,211.5 "	1,219.5 "
Average gain in 191 days.....	314.1 "	328.9 "
Average gain per day.....	1.64 "	1.72 "
Average cost per steer at \$6.46 ½ per cwt.....	\$58.02	\$58.58
Average cost of feed.....	39.04	39.73
Total average cost per steer.....	97.06	97.31
Average selling price at \$8.75 per cwt. with 5 per cent shrinkage.....	100.70	101.37
Average profit per steer (labour and value of manure not counted).....	3.64	4.06
Average cost of 100 lb. gain.....	12.43	12.08

It will be observed that the alfalfa-fed steers required a smaller daily feed. They gained a little more in weight and made slightly better profit, even though the alfalfa was charged to them at a higher rate per ton. Alfalfa therefore gave the best results.

STEER FEEDING EXPERIMENT AT LACOMBE, ALBERTA

LAST autumn fifty steers were divided into three groups at Lacombe, Alta., Experimental Station for the purpose of experiments in feeding. One group of twenty was fed in the open with a limited amount of brush for shelter and were watered through a hole in the ice. A second group of twenty were fed in the shelter of a seven-foot board-fenced corral and were watered twice daily at a tank outside. A heater kept this tank free from ice. A third group of ten were fed in box stalls, where water was always obtainable. Salt was supplied regularly. In order to obtain information as to the relative values of different bulky fodders for beef production ten other steers were fed in the barn, six on green sheaves, two on timothy and two on ensilage and straw. The cattle were put on feed November 25th and sold March 3rd. Grain feeding commenced January 1st, the ration being comprised of one part of oats and two parts barley, ground and fed in the beginning at the rate of three pounds per head per day. This ration was gradually increased to eight pounds per head per day and

because of the high price of feed was not increased any further.

One of the conclusions reached is that the erection of buildings of any substance for cattle in Alberta is a waste, all that is necessary being a tight board fence about the corral. The cattle fed in the open were ready to drink at the appointed times, and the thick undercoat of hair developed proved sufficient safeguard against the weather. The animals inside were inclined to sweat and become itchy and did not present the same comfortable appearance as the cattle in a well-bedded corral outside.

PRICES OF FODDER

In making the comparisons given in the following table the values attached to the various fodders were:—

Prairie hay.....	\$ 5.00	per ton.
Timothy hay.....	10.00	"
Green sheaves.....	10.00	"
Barley.....	.56	per bushel.
Oats.....	.46	"

There was the slightest variation in the dressed weight of the different groups, the average for the sixty head being 59.99 per cent of car weights.

RESULTS IN DETAIL.

	Group 1. Green Feed Inside	Group 2. Timothy Hay Inside	Group 3. Ensilage and Hay Inside	Group 4. Prairie Hay Inside	Group 5. In Corral Outside	Group 6. In Brush Outside
Number of steers in lot.....	6	2	2	10	20	20
First weight, November 25, 1914.....	Lb. 7,100	Lb. 2,370	Lb. 2,475	Lb. 11,700	Lb. 23,278	Lb. 23,625
First average weight.....	1,183	1,185	1,237	1,170	1,162	1,181
Finished weight.....	7,980	2,540	2,680	12,690	27,430	26,590
Finished average weight.....	1,330	1,270	1,340	1,269	1,371	1,329
Total gain in ninety-seven days.....	880	170	205	990	4,152	2,965
Average daily gain, per steer.....	1.47	.85	1.025	.99	2.07	1.48
Amount of meal eaten.....	25.98	866	8.66	4,060	8,660	8,660
Amount of hay eaten.....		38.40	80.15	29,030	58,450	66,290
Amount of green feed eaten.....	9,328					
Amount of straw eaten.....			3,765			
Gross cost of feed.....	\$77.04	\$29.33	\$25.91	\$120.07	\$247.44	\$267.04
Average cost of feed, per steer.....	12.84	14.66	12.95	12.00	12.37	13.35
Cost of cattle.....	437.83	146.15	152.62	721.50	1,435.64	1,456.87
Average value of steers at start.....	72.97	73.07	76.31	72.15	71.77	72.84
Cost of 100 lb. gain.....	8.75	17.25	12.98	12.12	5.95	9.00
Return from cattle at \$7.10 less 5 per cent. shrinkage, less $\frac{1}{2}$ of 1 per cent insurance	535.57	170.48	179.87	851.67	1,840.91	1,784.54
Average selling price per steer.....	89.26	85.24	89.93	85.15	92.05	89.23
Average income in value.....	16.29	12.17	13.62	13.01	20.28	16.38
Profit on group.....	20.70	5.00	1.34	10.10	157.99	60.63
Profit per head.....	3.45	2.50	.62	1.01	7.90	3.03

THE FRUIT BRANCH

THE UNITED STATES FRUIT CROP

IN the last Fruit Crop Report, published by this Branch on June 1, there was no report given of conditions in the United States. This omission was due to the fact that very little information had reached us from any of the States when that Report was issued. Since that time several reports have come to hand, a summary of which follows:—

In the large fruit-producing sections of the Northwestern States, production will fall below 1914, in spite of the fact that a large number of young orchards will bear their first commercial crop this season. Even in sections where yields were small in 1914, such as the Rogue River Valley, there will not be an increased production. In Wenatchee and Yakima, where there was a light crop of Jonathans last year, that variety is again short. As a conservative estimate, the crop in the Northwest States may be placed at

not more than 70 per cent of that of 1914.

In Michigan all varieties of early apples will bear a good crop, with fall and winter varieties variable, and Baldwins short. There are excellent prospects for cherries and peaches, but a poor showing for pears. Grapes and strawberries have been seriously injured by frost.

A good crop of peaches is also reported in Southern Missouri, New Jersey, Delaware and New York, with a normal crop in Georgia. The crop in Texas is about 50 per cent of normal.

The apple crop in New York State promises to be good, with a heavy yield of Greenings and a shortage of Baldwins. Early and fall varieties blossomed heavier than later sorts. The total crop will be less than last year on account of the shortage of Baldwins, which is the principal variety grown in the State.

PROSPECTS FOR MARKETING FRUIT

ALREADY Canadian fruit growers are becoming anxious as to the likelihood of disposing of their crops this year at satisfactory prices. There will be a fair crop of practically all varieties of fruit, and the growers are apparently keeping in mind the panic which followed the outbreak of war last summer, when shipping facilities to the Old Country markets were temporarily demoralized, and when a considerable quantity of Canadian fruit was allowed to go to waste. This was largely due to the fact that many itinerant apple buyers were not operating. Consequently, growers who in previous years had been dependent upon these men to handle their fruit found themselves left with a crop of apples on their trees, with no knowledge of marketing and with no established trade connections. At all events the season was not a satisfactory one.

To predict now what is likely to be the market situation next autumn is impossible; at the present time there is reason to hope that a much more satisfactory state of affairs will prevail than in 1914. In the first place the panic is over; all classes have had time to reflect upon the general situation and upon their own positions. Reflection has resulted in, or been followed by,

optimism, and the Canadian public, outwardly at all events, is less perturbed now than it was last fall.

In the second place, our large consuming markets in the West promise to be as large and important a factor as ever in disposing of the fruit crop. Conditions there depend largely upon the grain crop, which is reported good in all districts. Money should circulate freely and consumers should buy readily.

Thirdly, the labouring classes in Great Britain have secured employment at better wages than they ever received, and the buying power which was reduced last year through unemployment and panic, has now been improved by the demand for labour.

To these facts we must add one more: the added publicity which is being given to Canadian fruit. In British Columbia, in the Niagara Peninsula, and in Nova Scotia, great efforts are being put forth to increase consumption by direct advertising, and good results are assured.

With all these factors working in favour of the fruit industry, the coming season should be a very successful one in all respects, and not one to justify the uneasiness that is now apparent.

THE ENTOMOLOGICAL BRANCH

INVESTIGATIONS IN THE CONTROL OF VEGETABLE INSECTS

BY ARTHUR GIBSON, CHIEF ASSISTANT ENTOMOLOGIST

GROWERS of vegetables are continually troubled with various common insect pests which every year levy a very heavy toll, and in addition to the regularly occurring kinds, there are almost every season outbreaks more or less

widespread in occurrence, of little known species or of certain ones which occur intermittently, such as, for instance, the army-worm, which in 1914 cost the province of Ontario alone a quarter of a million dollars. It has been estimated that at least

twenty per cent of vegetables grown every year are destroyed or rendered useless by injurious insects. The wide-awake grower is every year learning more and more about the common forms of insects which, almost every season, attack in varying degree the different vegetables which he grows. It is surprising, however, that in many parts of Canada, growers of vegetable crops have not given sufficient attention to those kinds of insect pests which occur almost annually, and which, of course, destroy, more or less, cabbages, cauliflowers, tomatoes and other cultivated plants. Such losses could often be entirely prevented or a large percentage of the crops saved if the grower had properly investigated the injury and applied the correct remedy. It is not, of course, necessary that the vegetable grower should make a special study of the insects themselves. He has not the time nor the inclination to do this. What every grower should, however, particularly notice when an insect is attacking a crop is how it feeds—whether it bites its food or sucks it up through its beak which it inserts into the plant tissue. If the insect is a biting one a stomach poison, such as Paris green or arsenate of lead, is usually recommended, but if the species is a sucking one, such a stomach poison would be useless, because the insect would insert its beak through the poison and reach a safe feeding ground beneath. A contact insecticide is, therefore, necessary, for controlling sucking insects, and those usually recommended are kerosene emulsion, whale oil soap and tobacco preparations.

The Entomological Branch of the Dominion Department of Agriculture has devoted considerable attention to the study of vegetable insects and their control, and circulars and

bulletins have been published on some of the more important pests. Investigations are now in progress on the life-history, habits and control of cutworms, locusts, root maggots, etc. The Branch is anxious to co-operate with growers in every way possible. Prompt correspondence on the part of the grower, with specimens of the insects responsible for damage, is earnestly requested.

The present season has witnessed serious outbreaks of such well-known pests as the Red-backed Cutworm, the Army Cutworm, the Lesser Migratory Locust, the Onion Maggot, the Cabbage Maggot, the Seed Corn Maggot, the Colorado Potato Beetle, etc. Since the publication in the April issue of THE GAZETTE of a new poisoned bran remedy for cutworms, we have conducted further experiments in the control of these caterpillars and in certain dry areas, such as in Southern Alberta, we have found that where shorts was substituted for bran better results were secured. As to locust control, we are carrying on extensive experiments in the provinces of Ontario and Quebec and hope soon to be able to report our results. Experiments carried on in 1914 are discussed in Entomological Circular No. 5. The protection of cabbages and cauliflowers by placing tarred felt paper discs around the stems at the time of planting out has again given satisfaction. For radishes and onions fresh pyrethrum insect powder, 2 ounces in one gallon of water, or white hellebore in the same strength, has some years given good results, the mixture being applied once a week for three weeks from the time the plants appear above ground. Owing to the cost of the material, however, the use of either of these insecticides at the above strength is only practicable on a small scale.

THE HEALTH OF ANIMALS BRANCH

WORK OF THE MEAT AND CANNED FOODS DIVISION

THE Meat and Canned Foods Division was very busy during the last eight months of the fiscal year ending March 31st. Prices for live stock were fairly well maintained when the exceptionally large run of these animals is

considered. This was no doubt due to the foreign demand for meats.

The following tables will show the increase in our meat exports, as also the increase in the number slaughtered under inspection during the first four months of the Calendar Years 1914 and 1915.

LIVE STOCK SLAUGHTERED AT INSPECTED ESTABLISHMENTS THROUGHOUT CANADA

	Cattle	Sheep	Swine
January, 1915.....	29,874	13,885	336,173
" 1914.....	26,242	17,152	196,560
February, 1915.....	24,963	5,014	288,173
" 1914.....	19,217	7,484	175,169
March, 1915.....	35,863	4,704	257,114
" 1914.....	25,960	5,412	166,872
April, 1915.....	40,958	2,089	201,894
" 1914.....	40,189	5,431	168,671
Total, 1915.....	131,658	25,692	1,083,354
" 1914.....	111,608	35,479	707,272

EXPORTS TO GREAT BRITAIN FOR EIGHT MONTHS ENDING MARCH 31st, 1915, AND SAME PERIOD, 1914

	1915	1914
	Lb.	Lb.
Beef.....	1,330,482	190,787
Bacon.....	61,935,602	15,573,948
Hams.....	6,917,423	1,203,729
Pork.....	5,793,870	54,784
Tongues.....	12,272	.....
Lard.....	1,804,441	.....
Canned Meats.....	5,996,900	273,122
All others.....	729,042	660,007

THE DAIRY BRANCH

THE CONSUMPTION OF CHEESE IN CANADA

BY J. A. RUDDICK, DAIRY COMMISSIONER

THE consumption of cheese in Canada is very small as compared with European countries, and probably does not

exceed 3 pounds per capita per annum. In the United Kingdom, the annual consumption is estimated to be about 13 pounds per head.

Many people think cheese is indigestible and a cause of constipation. This is probably due to the fact that much of the cheese eaten in this country is immature and is added to a meal in which is already included a full allowance of protein.

Cheese should be eaten more as a substitute for meat than as an addition to a menu of which meat is the principal food. Pound for pound cheese has nearly double the food value of beef of average composition and has at least 25 per cent more food value than the edible portion of the best sirloin steak.

In view of the high nutritive value of cheese, and its low cost as compared with that of meat there would seem to be good reasons why an increased consumption should be encouraged.

A SMALL HOME TRADE

The home trade in cheese until recently, at least, has been so small, that very little attention has been paid to it either by the manufacturer or the wholesale merchant. The retailer, as a rule, is not a good judge of cheese, nor has he sufficient knowledge of the changes which cheese undergoes to control these changes and thus develop its best qualities or to retain those qualities when they are developed. This is important when it is considered that cheese are only partially cured or ripened when they are disposed of by the manufacturer. It may be added also that a not uncommon practice has been for the manufacturer to unload on the retailer some of the cheese having qualities which make them inferior for the export trade. Of course, this may not have been an unmixed evil, for it has protected the reputation of our cheese in the principal market for it, but it undoubtedly has been one of the factors influencing the consumption of cheese in this country.

Cheese made during the early summer if cool cured—that is not exposed to a temperature higher than 60 degrees F.—will, if properly made, be in good condition for eating during the following winter and will improve, under proper treatment, for a year or more.

Cool cured cheese should not be placed in cold storage. The finest qualities will be developed at a temperature of about 60 degrees.

A REMEDY FOR DRYNESS

Owing to the dryness of the climate in Canada and especially the dry atmosphere of shops and homes during winter months, the surface of a cut cheese dries out very quickly and thus becomes unpalatable, so that there is a considerable amount of waste apart from the shrinkage in weight. This fact has mitigated against both the sale and consumption of cheese to a considerable extent. The remedy is to keep cheese in a *nearly* air-tight receptacle so as to prevent the evaporation of moisture. Mould seems to grow more readily if the container is absolutely air-tight.

A cheese weighing about 10 pounds is a convenient size for selling at retail. In using such a cheese a good plan is to cut it in two and dip the fresh surface of one-half into melted paraffine wax which will retain the moisture while the other half is being eaten. All cheese for home trade should be dipped in paraffine wax before being placed in storage. This has the effect of preventing shrinkage and retaining the moisture which gives the cheese its mellow, meaty texture.

There is a good opening in Canada for cheese factories to cater to the home trade by making cheese of suitable size and by having them properly ripened before putting them on the market.

PART II

Provincial Departments of Agriculture and of Education

THE GROWING OF VEGETABLES

PRINCE EDWARD ISLAND

BY THEODORE ROSS, SECRETARY FOR AGRICULTURE

UP to the present time the Department of Agriculture of Prince Edward Island has not given special attention to the growing of vegetables.

There has been very little market for them in the province and the freight rate from Ontario and Quebec to the manufacturing towns of Nova Scotia has been cheaper than from Island points.

There are now a few "market gardeners" in the vicinity of Charlottetown. They ship by weekly

steamer to Cape Breton and to Newfoundland. The sailings are not sufficiently frequent to establish a regular market and the demand is consequently easily supplied.

It is expected, however, that the completion of the car ferry, making a one haul freight, will stimulate the development of a garden truck industry. The district representative in King's county will also give vegetable growing as much encouragement as possible.

NOVA SCOTIA

BY P. J. SHAW, PROVINCIAL HORTICULTURIST

A series of articles on "Vegetable Gardening in Nova Scotia" was published in the annual report of the Secretary for Agriculture for 1913. These articles were reprinted and circulated in pamphlet form. They comprised articles on the culture of all the vegetables ordinarily grown in Nova Scotia, articles on insects and diseases, cooking of vegetables, greenhouse construction, straw-

berry culture, beekeeping, and other topics.

The object was to call attention to the value of vegetables as wholesome and economical articles of diet and to stimulate people to grow and enjoy more of this kind of food. It was pointed out on medical authority that green vegetables, when well prepared and properly cooked, may often be very useful as remedial herbs, and that a vegetarian diet can

give good results, not only in the prevention and cure of disease, but also in the preservation of health in old age. Many persons fail to appreciate good vegetables through not having become acquainted with them in their youth, or not having had them fresh from the garden. In this Province the vegetable diet of a large portion of our population is too often limited to a few of the most common and easily grown and stored vegetables, such as potatoes, turnips and cabbage, while a family may easily be supplied from even a small piece of land with many of the choicer kinds. The effort required to do this would afford a pleasant

brought as rapidly as possible into a condition suitable for the growth of vegetables and fruits.

In the meantime, fairly sized areas are being devoted to potatoes, roots, cabbage, tomatoes, strawberries and celery, and on the better parts of the farm nearly all the vegetables that will succeed in Nova Scotia, from asparagus to the sweet herbs, are being grown. The aim is to utilize this farm to get acquainted with, and help solve, some of the truck garden problems of this province, and also to afford illustrations to our students and visitors of the growth of all kinds of vegetable garden crops. In addition to this a



PART OF THE TRUCK GARDEN AT THE AGRICULTURAL COLLEGE, TRURO, N.S.

diversion and healthful outdoor occupation.

The Horticultural Department of the Agricultural College at Truro devotes considerable space and effort to the growing of vegetables. Two years ago a 30-acre farm, three-quarters of a mile east of the College buildings, was bought for the purposes of horticulture. Much of this land was in bush and the arable part was pretty well run out. By application of manure and fertilizers, and by tillage, the land is being

small vegetable garden is cultivated each year near the horticultural building for the special benefit of Rural Science students. These students, being teachers in the rural sections of the Province are interested in school gardens and elementary agricultural education.

There is little difficulty in the growing of most vegetables in Nova Scotia. The chief trouble is to find a profitable market. Not that there is lacking demand for these products, but because the demand is largely

supplied by shippers from outside the province. Wholesalers for some reason seem to give the preference to imported goods, possibly because they can in this way obtain a steadier supply. The remedy would seem to be for our growers to produce in larger quantities and to organize and market their crops co-operatively. The fruit growers have already done this, having opened a commission

In order to bring illustrations nearer to our country people, a start has been made in establishing demonstration vegetable gardens in different parts of the province in connection with several of the demonstration orchards. The tillage and fertilizing necessary for these gardens are also beneficial to the young orchards. The seeds and plants are



PARTIAL VIEW OF FRAME YARD AT THE HORTICULTURAL BUILDING,
AGRICULTURAL COLLEGE, TRURO, N.S.

house of their own in Halifax, in which they handle vegetables as well as fruit and other farm produce.

A small home-canning outfit was installed in the horticultural building last year to show students how the surplus vegetables from the garden might be utilized to extend the season for many kinds throughout the year.

provided by the Department of Agriculture, and the land, manure and labour by the owner. It is hoped that this will help to acquaint these people with a greater variety of vegetables and induce them to grow and use them, thus adding to their health, prosperity and enjoyment of living.

The French Minister of Public Instruction to the teachers of France:—

“A nation may be rich enough to spend millions in killing its enemies, but no nation is rich enough to neglect the education of its children.”

QUEBEC

BY J. ANTONIO GRENIER, B.A., SECRETARY, DEPARTMENT OF AGRICULTURE

IN order to get the youth of our schools interested in the growing of vegetables and gardening work as a whole, the Department of Agriculture has established small gardens in rural schools, where children may learn to grow vegetables and to appreciate the products of their work. There are now 754 such gardens. This number will soon be increased to a thousand.

The work on the school garden is necessarily limited and proportionate to the size of the school grounds, to the age of the pupils, and to the time that the latter have to spare.

The Department of Agriculture supplies the seed, seedlings, some fertilizers and some instruction in the shape of pamphlets, charts, and record books in which each pupil-gardener records his work and keeps his accounts. (Bulletin No. 12 and "A Diary of my Garden.") Prizes are also given to the best pupils.

In districts where instructors cannot as yet be supplied to supervise these gardens, the supervision is done by the school inspectors, numbering about twenty-five, and who prepare themselves for this work by taking two annual short courses of fifteen days each, in one of the provincial schools of agriculture. The summer short course for school inspectors and school teachers will be held this year at the Oka Agricultural Institute and at the Macdonald College. These inspectors have given lectures on vegetables

and fruit growing in almost everyone of their schools.

The land, fences, farmyard manure and small tools necessary for the care of the garden are supplied by the school boards. All domestic science schools, which number about forty-five, must have a garden of this kind but of a larger size. At such schools a course in horticulture is also compulsory.

In April, the Department of Agriculture secured the services of an expert gardener and an assistant for giving practical demonstrations in Normal schools.

At the Jacques-Cartier Normal School, in Montreal, future teachers learn to grow vegetables and fruit on the three acres of the college grounds.

At the Laval Normal School, Quebec, ten acres were available which were chiefly used for poultry keeping and for practical demonstrations to pupils during the holidays. The place being a little too far from the school, the Department secured this year a garden and an orchard of six acres near the college. This includes a green house, an apiary, and poultry buildings. Lessons will be given by a gardener, a poultryman and a bee-keeper. As special crops will be required for feeding the hens and also for the bees, pupils will get training in gardening and fruit culture at the same time.

ONTARIO

BY W. BERT ROADHOUSE, DEPUTY MINISTER OF AGRICULTURE

VEGETABLE growing in the province of Ontario represents, roughly speaking, an industry of two million dollars an-

nually. This covers only that part of the industry which is devoted to growing vegetables for immediate consumption in towns and cities,

aside from the much larger area which has been devoted during the past few years to the growing of vegetable crops for canning factory purposes. It is clear, therefore, that the vegetable industry is sufficient to warrant considerable attention in the general work of the Department of Agriculture. This has been recognized for many years, but perhaps one of the most important steps was taken a couple of years ago when, by virtue of the money available under THE AGRICULTURAL INSTRUCTION ACT, it was decided to add a Vegetable Specialist to the staff of the Department who would devote his entire time to this industry. A graduate of the Ontario Agricultural College who had specialized in vegetable growing was secured, and the first work undertaken was that of greenhouse construction. Thousands of dollars worth of hot-house plants are imported into this Province every year, and while there are a number of hothouses which are producing early vegetables, there is still room for advancement along this line. Hence, a careful investigation was made of the question of greenhouse construction on this side of the line and in the United States, and a Bulletin was issued which is a standard by which any of those desiring to construct greenhouses may go. Along with this has also been made a study of greenhouse crops and something will in the near future be issued on this subject.

During the past winter, in view of the great attention paid to back lot and vacant lot gardening, the vegetable specialist was asked to prepare a brief but comprehensive Bulletin dealing with all kinds of vegetable crops. This was issued in as simple and understandable language as possible so that a man with little or no experience could possess himself of information which would enable him to make a success of his gardening efforts. Fifty thousand copies of this Bulletin have been issued and it has been sought, not

only from all parts of the Province, but from almost all the other Provinces of the Dominion. It has been accepted as one of the most useful and practical books on the subject.

Then, too, considerable work has been done along educational lines among those engaged in vegetable growing for a living around the larger centres of population. During the winter months short courses of one or two days were held at which the problems of vegetable growers were discussed by experts, and the latest information was in this way disseminated.

Addresses by the vegetable specialist were also given at the courses in agriculture held by district representatives in the hope that greater interest might be developed in the garden on the farm even where it was not counted upon as a financial asset.

During the summer months the chief work in hand consists in experiments with different diseases. At the present time experiments are being carried on in the spraying of celery in several districts. This is more in the nature of a demonstration than an experiment, as an experiment was carried on in this line last year and proved conclusively that spraying would control celery blight and save thousands of dollars to the growers. Other experiments include cabbage root maggot conducted in three districts, onion blight in one, and sterilization of the soil in one.

Work is also being done in the marketing of early tomatoes on Pelee Island, and in the development of a supply of home grown seed, for which we have heretofore been dependent on outside sources.

The pioneer work in the encouragement of vegetable growing has, however, been done very capably by the Ontario Vegetable Growers' Association which includes branches organized in all sections of the Province. They hold an annual

convention for the discussion of problems of timely interest and they also hold branch meetings from time to time throughout the year at which addresses by able growers are delivered. They have undertaken considerable in the way of co-operative buying of seed or other supplies, and in this and other ways have been of great benefit. To their activities during the past few years has been added an annual crop competition which has also developed great interest. These competitions are confined to four classes, viz.: onions, tomatoes, celery and early potatoes. Members of branches compete among themselves for the prizes offered in their respective districts. They may compete in any or all of the field crops mentioned, but there must not be less than ten entries in each class from each district, and the plots entered for each class must not be less than a quarter of an acre. Onions may be of any colour, but must be grown from seed. They may not be transplanted, however. For the purpose of the competitions the Province is divided into four districts as follows:—

1. Cyrrville, Ottawa, Kingston and Pelleville.
2. Toronto, St. Catharines, Welland, Dunnville, Lincoln and Welland.

3. London, St. Thomas, Stratford, Brantford and St. Williams.

4. Blackwell, Ojibway, Canard River, Sarnia and Tecumseh.

Judges are provided free of charge by the Ontario Department. The prizes offered in each district for each of the four classes are: 1. \$25; 2. \$20; 3. \$15; 4. \$10. If the prize lists of the Canadian National Exhibition, the Central Canadian Exhibition, and the Western Fair are considered satisfactory, prize winners are required to compete at these fairs. Express charges on the prize winning vegetables at these fairs are defrayed by the Ontario Government.

In addition to the above, considerable experimental work in vegetable growing is carried on at the Ontario Agricultural College and at the Vineland Experimental Station, in fact the importance of the industry was recently recognized by adding one of the leading vegetable growers to the advisory board in connection with the Vineland Station.

All these factors are contributing materially to the upbuilding of an already important industry in this Province.

MANITOBA

BY H. J. MOORHOUSE, ASSISTANT DEPUTY MINISTER OF AGRICULTURE

THE interest in vegetables and other market garden crops in Manitoba is steadily increasing. It has been the custom in the past for many farmers engaged in grain growing almost exclusively to ignore the farm garden, even to the extent of purchasing their table supplies of vegetables from neighbouring sources. The production of garden produce has been so far below the crying demand of the cities in this province that very large importations have flourished, and the

inconsistency of this state of affairs in a province, which can produce such a wide range of highest quality garden crops, has been very apparent in the past.

The Manitoba Department of Agriculture and the Manitoba Agricultural College, the Manitoba Horticultural and Forestry Associations and the local horticultural associations have done much to improve conditions. Vegetable growing was made a strong feature of the horticultural convention last year and

much valuable discussion resulted as to the growing of vegetables on a commercial basis and the benefits obtained from that kind of work.

New horticultural societies have been organized at Stonewall, Neepawa, Souris, Pilot Mound, Crystal City, Killarney and Dauphin with immediate quickening of general interest in garden produce.

Every year the Manitoba Agricultural College and the Department have endeavoured to improve the system of gardens by conducting

"The Horticulturist," a publication devoted to the interests of gardening, is a regular visitor among all members of horticultural societies and others interested in this sort of work.

In the city of Winnipeg the Civic Improvement Committee of the Industrial Bureau has a clearing office for information concerning the cultivation of vacant lots in the city; anybody desirous of having a garden can secure vacant lots listed by owners for the purpose. This year,



DISPLAY OF VEGETABLES GROWN NEAR WINNIPEG

garden competitions and various garden exhibits, held in the fall. The staff has done much excellent work in judging at these competitions and the bulletin on "The Farm Garden," written by F. W. Brodrick, Professor of Horticulture and Forestry at the college, has been widely circulated throughout the province to great advantage. The improvement in gardens has been particularly noticeable in the St. Vital and Kildonan districts.

particularly, interest is keen in the production of something from vacant lands in and about Winnipeg. A Home Garden Competition has been inaugurated with prizes of \$25, \$15 and \$10 for the best back yard garden. Quite a large number of five, ten and fifteen-acre lots in the adjoining municipalities, hitherto standing idle, are being utilized this year.

In handling the unemployed problem, the city council has undertaken

to plant several large plots of land in order to give employment to idle men. The same idea was carried out

potatoes at the old agricultural college site.

Mr. Charles F. Roland, Industrial



FOUR AND ONE-HALF ACRES OF CUCUMBERS

Grown by A. S. Lay, East Kildonan, Manitoba

by the provincial government, who furnished work for a large number of men by planting some 400 bushels of

Commissioner, reports the question of production from vacant lots in Winnipeg and surrounding munici-



PICKLING ONIONS

Grown by A. S. Lay, East Kildonan, Manitoba

palities as a distinctly live issue this year.

A similar report has been received from Mr. J. Giddings, Secretary of the Vacant Lot Cultivation Society at Brandon, where about one hundred

looks upon this year as a mere beginning, the ready response and enthusiasm of applicants argues well for the permanent success of the scheme. To add to the interest the prize-list of the Brandon Horticultural Society



LETTUCE GROWN AT EAST KILDONAN, MANITOBA

lots in all sections of the city have been cultivated and planted. In the south end of the city property has been let out in one and two-acre plots and while the committee in charge

Exhibition, to be held on September 1st and 2nd this year, contains several special prizes for vacant lot cultivation.

ALBERTA

BY H. A. CRAIG, B.S.A., DEPUTY MINISTER OF AGRICULTURE

THE Alberta Department of Agriculture is fully seized of the fact that the general tendency towards extensive rather than intensive agriculture on the prairie, and the circumstances attending the establishment of farm enterprises on wild land, are not favourable to garden development. On the open prairie the buildings are large; cultivation is undertaken for quick commercial gains; money-making rather than home-making is the motive behind many farm undertakings, and there has not been

much progress towards securing good living from the well-tilled garden plot. Canned corn, canned raspberries and canned soups from factories are not so wholesome or economical as the home-products of the same kind.

On the smaller farms the demands on labour in clearing, breaking, fencing and building are so great that garden development has been slow here also. A good garden is recognized as necessary to economical, wholesome and pleasurable home living.

DIRECT ENCOURAGEMENT

The Department of Agriculture has issued for free distribution a concise but comprehensive bulletin on vegetable gardening. In its production the services of the principals of the schools of agriculture have been used. The land allotment at the demonstration farms, where schools are established, gives a plot of twenty acres for laboratory and experimental use by the agronomy teachers. Part of it consists of a typical garden to show concretely

soil, location and exposure, preparation, objects served by tillage, efforts of cultivation explained, irrigation, manures and commercial fertilizers, time to plant, method of planting, good seed, thinning, harvesting and storing, construction, preparation and use of the hotbed, insects and insecticides.

A valuable part of the pamphlet is the naming of varieties suitable for the province as determined by actual tests in demonstration gardens. The list includes every common vegetable



CAULIFLOWER AND CELERY GROWN AT EDMONTON, ALBERTA

what can be done with the farm garden plot in the production of vegetables, flowers, small fruits and shrubs. As the farms are in three different sections of the province, the matter of the bulletin has been harmonized and varied to meet different conditions. It takes account of both irrigated gardens and those depending upon natural moisture, and is, in fact, a complete handbook for vegetable gardening in Alberta.

Some of the topics are: garden

of the root, salad, and gourd sorts, as well as corn, tomatoes, and early and general varieties of potatoes. The bulletin is in large request.

THE ALBERTA POTATO

The general suitability of the Alberta soil and climate for the production of good vegetables is typically shown in the quality of the potatoes. Special work is being done by the Department of Agriculture to foster and organize the production of

this important product and concurrently to establish good marketing conditions and connections. This work promises large results without great effort. Everybody grows some potatoes and everybody usually grows a surplus, but small surpluses of different types and varieties are commonly sold or traded at low prices. The work in which the Department is engaged has the following aims:—

- (a) The distribution of reliable information on potato growing.
- (b) The limiting of the number of varieties.
- (c) The determination of the best general varieties.
- (d) The organization of potato clubs for the production of standard varieties in quantities.
- (e) The establishment of marketing connection.
- (f) The rigid inspection of the output.

An attractive bulletin has already been printed to the number of 15,000 and is being distributed. It includes a discussion of potato markets and co-operative production, preparatory cultivation, varieties, improvement by selection, planting, summer cultivation, harvesting and storing. Diseases and remedies are fully discussed and coloured plates shown to aid in the recognition of diseases.

POTATO CLUBS

An illustration of work in local organization is the case of the potato club organized at Stony Plain as ex-

tension work of the Department of Agriculture. The club was organized in 1913. Nine varieties of seed to the amount of a bushel of each kind were distributed to each of six farms, or farmers, and grown under an approved system of cultivation. A fair was held last fall, the potatoes were scored, tested by boiling and baking, the records of production were shown, and dealers were invited to inspect and pass on them. This year all the members of the club are producing Wee MacGregor potatoes to the limit of the seed produced last year; the club is enlarged and individuals are following the lead of the club members. A similar club is operating at Vermilion.

DIRECT PURCHASING

In the matter of markets, good results are expected. In fact the clubs are being watched by the dealers. The Department of Agriculture is likewise in negotiation with one of the largest transportation companies for the putting of the company in line to secure one hundred and thirty tons of selected baking potatoes for use in their dining cars. The company is out for Alberta potatoes for its Manitoba and Alberta divisions and has already furnished specifications and their preference in varieties.

The Department aims to impose rigid inspection on all products sold under its auspices and supervision.

“Courses of study in country schools need reconstruction and their work needs redirection. As human beings and as citizens, men and women living in the country have the same interests in the humanities (the term is used in its broad sense) and the things pertaining to civic life and citizenship that all other people have. But as farmers and farmers' wives, making their living from the soil and living in isolated country homes, their interests differ widely from those of men and women of the labouring and professional classes in the cities. However the case may have been in the past, it has now come about that farmers need a fuller, more extensive, more varied and thorough knowledge, a more comprehensive grasp of fundamental principles, and a greater power of adjustment than men engaged in other professions. The same is true of the farmer's wife as compared with other women. . . . Their courses of study need to be remade on the basis of what the farmer needs to know, and their teaching must take into consideration the environment and the raw material of experience of the country boy and girl.”—*Philander P. Claxton, United States Commissioner of Education.*

SOFT CHEESES

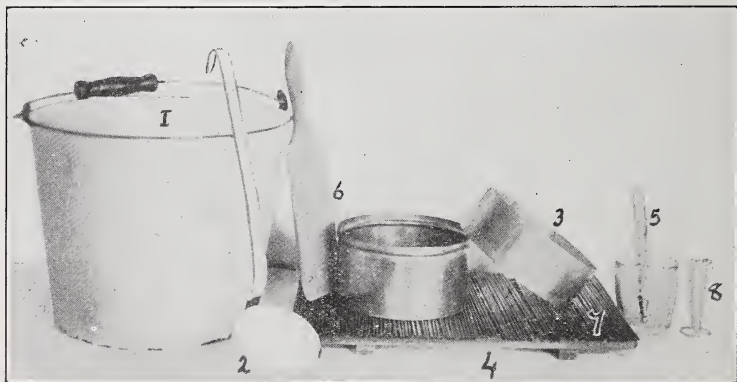
MACDONALD COLLEGE

BY MISS JENNIE REID, INSTRUCTOR IN HOME DAIRYING

THE two soft cheeses that are most in demand and are most popular are Coulommier and cream cheese. Within the last five years the demand for soft cheese has increased to such an extent that we are unable to meet the demand, owing to the fact that the milk has to be utilised for instruction in butter-making and hard pressed cheese as well. The public demand a fresh new cheese that can be eaten

making of soft cheese such as cream, the separated milk can be fed to calves. With the other varieties the whey can be fed to pigs. With this big demand to cater for has come the desire to know how to make the article to meet the demand. Fortunately no great capital or strength is required for the business of soft cheese-making.

One room only, the making room, is necessary, the air of which may be



UTENSILS USED IN THE MAKING OF COULOMMIER CHEESE

with salad without being cooked, and yet a cheese with a cheesy flavour.

Soft cheese-making should appeal to the dairy farmer and more especially to the small dairy farmer, who, as a rule, possesses little capital and only a few cows. It is of the utmost importance that he make out of milk that product which will give the biggest return. Where milk is sold everything is taken from the land. On the other hand in the

regulated to a temperature of 65 F. in winter and 60 F. in summer. It is essential that the room be kept at an even temperature in order to get the right degree of drainage. If kept at a high temperature rapid drainage of the whey takes place and hard gritty cheeses are the result. The aim is to retain the moisture to aid fermentation which is responsible for the digestible nature of soft cheese.

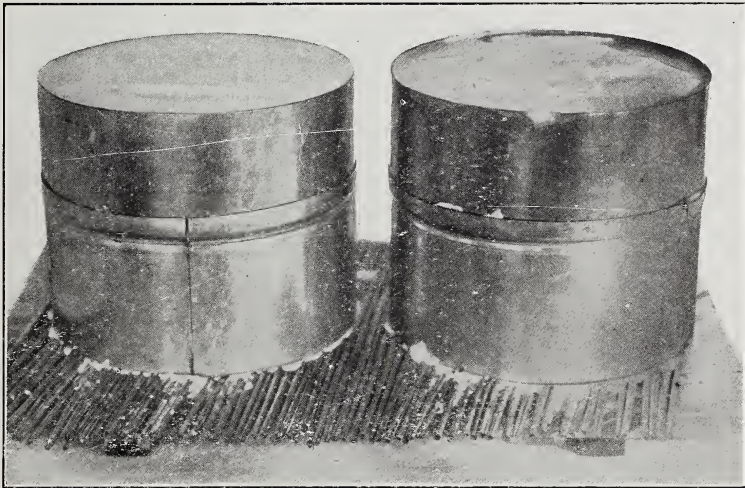
COULOMMIER CHEESE

Coulommier cheese not only aids digestion but is as nourishing as butcher's meat. This cheese is made from new milk, one gallon of milk producing two cheeses, which

it is generally eaten fresh from three days to a week from making.

Utensils required are few and are here listed with purchase price:—

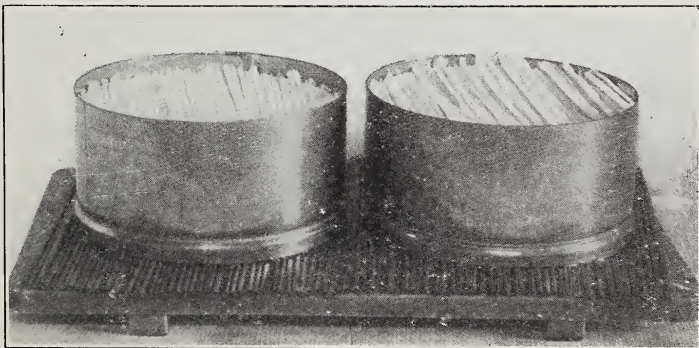
- | | |
|-----------------|----------|
| (1) Bucket..... | 50 cents |
| (2) Ladle..... | 25 " |



COULOMMIER CURD IN MOULDS

are sold wholesale at 15 cents each, retail at 20 cents to 25 cents each. The cheese weighs about one pound, is flat and circular, measuring $5\frac{1}{2}$ inches in diameter by $2\frac{1}{2}$ inches in thickness. As made in this country

- | | | | |
|---|-------|---|------|
| (3) Moulds..... | 50 | " | each |
| (4) Boards, 14" x 8" and $\frac{1}{2}$ " thick..... | ..... |  |  |
| (5) Thermometer..... | 25 | " | |
| (6) Wooden hand..... | 25 | " | |
| (7) Straw mat..... | ..... |  |  |
| (8) Measuring glass..... | ..... |  |  |

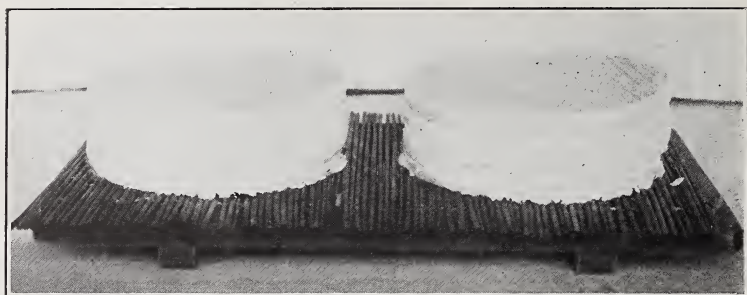


TOP HALF OF COULOMMIER MOULD OFF

The cheese usually takes three days to make. The curd is first ladled to top of mould as in 2nd photograph, No. 1, then allowed to stand 12 hours, when it sinks to the half as No. 2 of 2nd photograph. The top half of mould is taken off and cheese is turned and salted. It is then allowed to stand another 12 hours, when it is again turned and salted and mould removed ready for sale.

ounces and is made from cream of a 15 per cent butter fat. This may be taken from the separator of that thickness, or taken off at 25 per cent and diluted down with separated milk. It is profitable. The cream from 100 pounds average milk will make 25 cream cheeses which are sold wholesale at 15 cents each, retail at 20 cents.

From both cheeses the returns are



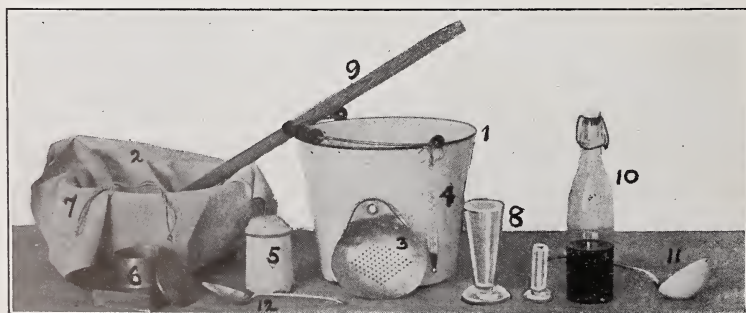
COULOMMIER CHEESE READY FOR SALE

CREAM CHEESE

For cream cheese the same room may be used for making. The extra utensils required are, mould for cheese, huckaback cloth and butter, muslin. The cheese weighs five

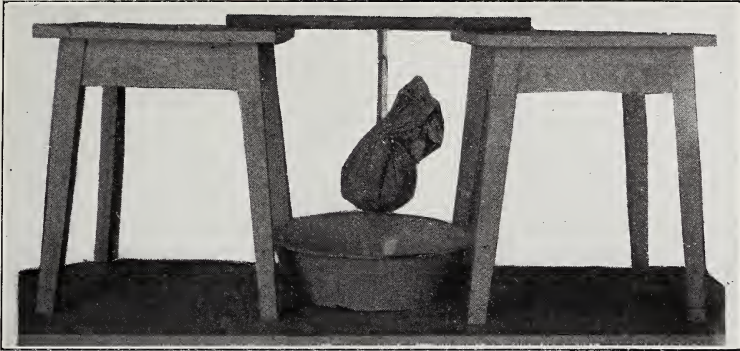
quick, both being marketable in three days, thus saving expense of storage.

For particulars as to manufacture consult Bulletin No. 25 on Coulommier Cheese and Bulletin No. 30,



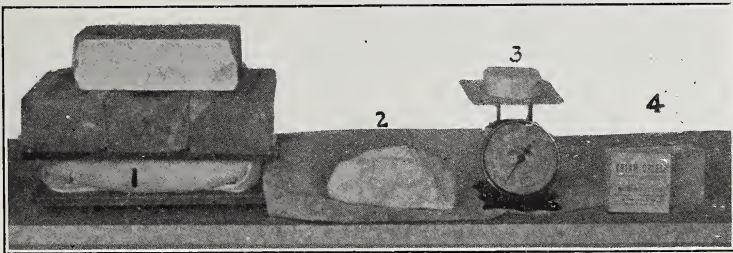
UTENSILS USED IN MAKING CREAM CHEESE

- (1) Pail, (2) Bowl and Huckaback Cloth, (3) Skimmer, (4) Thermometer, (5) Salt, (6) Mould, (7) String, (8) Measuring Glasses, (9) Stick, (10) Rennet, (11) Ladle, (12) Spoon.



CONTRIVANCE TO SHOW THE PROCESS OF CREAM DRAINING

Cream Cheese, Dairy and Cold Storage Commissioner's Series of the Dominion Department of Agriculture.



CREAM CHEESE

- (1) Curd under pressure (2) Curd ready for moulding
(3) Cheese moulded (4) Cardboard box.

ONTARIO

BY H. H. DEAN, PROFESSOR OF DAIRYING, ONTARIO AGRICULTURAL COLLEGE, GUELPH

THE Dairy Department of the Ontario Agricultural College, Guelph, has been giving considerable attention to the question of soft and fancy cheesemaking during the past five years. We have imported two cheesemakers from England, but the work is now under

the charge of Miss Belle Millar, who has been trained in our Dairy School.

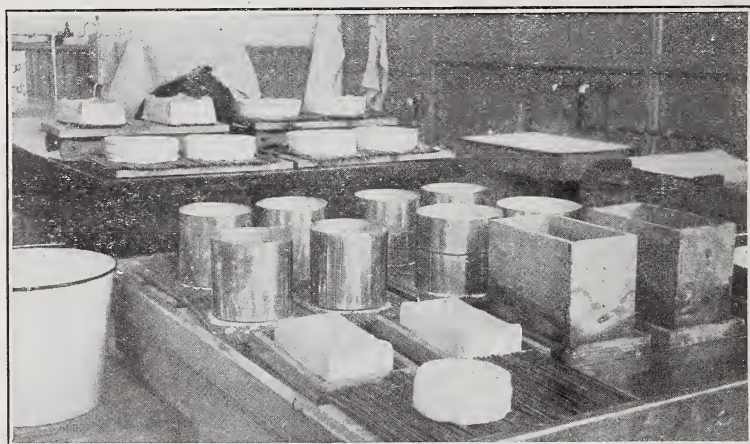
The three varieties we have most demand for, are, fresh Camembert, Gervais, and Cream. During the past three years our sales of these have been as follows:—

	Camembert	Cream	Gervais	Total
1912.....	863	1,762	914	3,539
1913.....	838	2,109	875	3,822
1914.....	620	2,970	449	4,039

We have not advertised them, but simply sought a market for our surplus cheeses made by students in their practical training; and also for those made in our investigational work as to methods of manufacture, and conditions best for holding and shipping. The details of these tests

may be found in the annual reports of the college. The methods of manufacture are described in Bulletin No. 206, pp. 28-31, of the Ontario Department of Agriculture.

The prices at which we sell the cheeses in Guelph are:—



APPARATUS USED IN SOFT CHEESE MAKING AND THREE COMPLETED CHEESES

Kind of Cheese	Wholesale	Retail
Gervais.....	7 cents each	10 cents each
Cream.....	10 " "	15 " " or 2 for 25 cents
Camembert { large size.....	12 " "	15 " " " " "
{ small ".....	7 " "	10 " " 3 " "

We usually sell to grocers in Guelph who send in orders; to students and others at the college; and to a few outside firms who have heard of our cheese from students or others.

As Canada imported for the year ending March 31st, 1914, over one and a half million pounds of cheese, chiefly of the fancy varieties, there is no reason why these should not be largely made at home.

Some people seem to think that the land campaign, which was gathering strength on the outbreak of the war, has been done for by Armageddon. I do not think so for a moment. The case for creating a better, brighter, and lovelier countryside is stronger than ever. We see that, in a time of emergency, the strong back and clear eye of the countryman are the very reservoir of national strength. We realize as we never did before how much it concerns the welfare of the United Kingdom to make rural life a finer thing than it has been.—“*Home Counties*” in the *World's Work*.

NEW BRUNSWICK

THE WINTERING OF ALFALFA

BY R. NEWTON, B.S.A., DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

SOME experimental work was started last spring, in co-operation with a large number of farmers in every part of the province, with a view to ascertaining the possibilities for growing alfalfa. The seed used was of supposedly hardy strains from Dakota and Montana, also small quantities of the Grimm and Baltic varieties. The samples were one pound each, enough to sow one-twentieth of an acre. In every case the seed was inoculated before sowing.

Failures to secure a good catch were numerous, but these can be explained by unsuitable conditions. Where it was given a fair chance the alfalfa made a good start in nearly every case, and the plots entered the winter covered with growths ranging from 6 to 24 inches.

Results this spring are somewhat disappointing. The absence of snow during a large part of the season made the winter rather hard upon all kinds of clover, and the alfalfa plots seem to have come through

very poorly. Where conditions were ideal, that is, where the plots were covered with a heavy growth and the snow lay upon it continuously, the plants came through with practically no injury, but unfortunately such conditions obtained in comparatively few cases. In two cases the farmers mulched their plots with straw, and succeeded in bringing them through perfectly. In most cases, however, the farmers report winter-killing varying from $33\frac{1}{3}$ to 100 per cent of the plants. The data secured thus far does not indicate any marked difference in the hardiness of the varieties tested.

It may be added that at Woodstock ten varieties grown in rows thirty inches apart, and cultivated during part of last season, came through without any injury whatever. In this case there was a growth of about eighteen inches in the autumn, which held the snow practically all winter. At this date (June 7th) they are about two feet high, and nearly ready for the first cutting, although it has been a backward spring.

QUEBEC

WOMEN'S INSTITUTES

BY J. ANTONIO GRENIER, B.A., SECRETARY, DEPARTMENT OF AGRICULTURE

WOMEN'S Institutes have been known for the last ten years in some European countries. They were organized as early as 1898 in the United States, but it is only quite recently that they were introduced in the province of

Quebec. This movement was reported on some time ago by the Director of the Journal of Agriculture and of Horticulture, who published a number of elaborate contributions on the subject. However, owing to the isolation of the farms

in the rural districts, and as the necessary preliminary organizations were only being formed, it was necessary to wait as late as the present time to make a start in the organization of Women's Institutes in Quebec.

The movement was launched in January, 1915, by the Honourable Mr. Caron, Minister of Agriculture, at the suggestion of several officers of the Department of Agriculture. It originated with the travelling short courses, held during the winter in some twenty counties of the province. It has been shown by experience that it is not wise to start too large a number of associations at the same time, as difficulties generally arise, which, in order to be overcome, require prolonged and sustained efforts that can hardly be expected from pupils who have not yet learned to act in co-operation. Everything considered, the Department judged it wise to establish only a small number of clubs in order to be able to supervise the same thoroughly and to meet local needs promptly.

Women's clubs being the necessary adjunct of school gardens and domestic science schools, they should only be tried at first in such districts where school gardens have been a success and where domestic science schools are to be found, as the children, having been taught the principles of co-operation, and the first notions of agriculture, are better equipped to form part of these associations, which will stimulate their activity and teach them the importance of co-operation and economy.

Therefore, the first three women's clubs were established in these districts: At Roberval, Lac-Saint-Jean county; at Chicoutimi, Chicoutimi county; at Champlain, Champlain county.

All women and girls who take an interest in agricultural matters may form part of these clubs. However, as most of their members are recruited among young girls, these

organizations have received the title of "Cercles des Jeunes Fermières," (Young Farmers' Women's Clubs), which differ to a certain extent from the women's organizations that have been known for some time in this country under the name of Women's Institutes. The chief object of the latter is to teach domestic science, sanitation and the care of the home, whilst our clubs deal mainly with agricultural matters, their objects being:—

1. To teach women a knowledge of rural matters and make them interested in such matters.
 - (a) By the establishment of a co-operative library.
 - (b) By the study of various questions of domestic economy, agricultural bookkeeping, hygiene, flower growing, ornamental shrubs, and other matters of agricultural importance.
2. To encourage the development of small agricultural industries of particular interest to women, viz., dairying, bee-keeping, poultry-keeping, horticulture, arboriculture, etc.

Their statutes have been framed after the present statutes for women's institutes, modified according to local needs. Being always in contact with the Department of Agriculture, these clubs secure the services of technical and practical experts and lecturers, who give them the information which they require. So far, they have been supplied with all the necessary equipment to manage a bee hive, a poultry house, an orchard or a garden, according to modern methods.

This spring, each one of these clubs, which average fifty members, were visited by our instructors of the fruit division, who themselves planted 600 apple trees, 400 prune trees, 800 strawberry plants, raspberries, gooseberries and currants.

Each club also received from the bee-keeping division, 50 dozens of eggs for incubation, which was conducted under the supervision of special officers. They also received a complete bee-keeping equipment.

The results obtained so far are very satisfactory and a large development of the work is anticipated.

THE MAPLE SUGAR CROP

THE maple sugar crop of 1915 has hardly shown the abundance in Quebec that it was hoped it would. On the contrary, Mr. Joseph H. Lefebvre, secretary of The Pure Maple Sugar and Syrup Co-operative Agricultural Association, states that the season, so far as the Labelle County School, of which he is also superintendent, is con-

cerned, has been "the worst known to any living man." The weather has been unfavourable, the cold of the day being accompanied with chilling dry winds. From Beauceville and Ste. Louise, L'Islet, as will be seen by the particulars herewith given, the yield has been decidedly better:

SUGAR-MAKING SCHOOLS, 1915

BEAUCEVILLE

Superintendent: Mr. Alex. Bolduc, Beauceville.

Attendance:—

Pupils.....	3	
Visitors.....	347	
Syrup manufactured.....	329 ½	gallons
Sugar manufactured.....	216	lbs.
Sugar-wax manufactured.....	119	"
Number of maple-trees.....	3,000	
Length of the season, March 22nd to April 22nd.		

STE-LOUISE, L'ISLET

Superintendent: Mr. L. J. A. Dupuis, Village-des-Aulnaies.

Attendance:—

Pupils.....	12	
Visitors.....	605	
Syrup manufactured.....	407	gallons
Sugar manufactured.....	400	lbs.
Sugar-wax manufactured.....	400	"
Number of maple-trees.....	4,000	
Length of season, March 29th to April 29th.		

MINERVE, LABELLE

Superintendent: Mr. J. H. Lefebvre, Waterloo, Que.

Attendance:—

Pupils.....	4	
Visitors.....	35	
Syrup manufactured.....	280	gallons
Sugar manufactured.....	65	lbs.
Sugar-wax manufactured.....	10	"
Number of maple-trees.....	3,000	
Length of season March 23rd to April 20th.		

Demonstrations on the manufacturing of maple sugar and syrup were given in the spring of 1915, in a number of sugar factories of Portneuf county as follows:—

" 12—Mr. Wilbrod Perreault,	
St. Casimir.....	71
" 14—Mr. Joseph Julien, St.	
Alban.....	75
" 15—Mr. Delphis Lachance,	
St. Thuribe.....	64

Attendance	
April 6—Mr. Sadoth Tessier, St-	
Casimir.....	135
" 7—Mr. J. P. Tessier, St.	
Casimir.....	75
" 9—Mr. Galarneau, St. Casi-	
mir.....	30

Mr. Lefebvre directs attention to the fact that there is now a law on the statute books prohibiting the making of anything resembling maple sugar or syrup and unwarrantably using the word "maple."

MACDONALD COLLEGE

ORCHARD DEMONSTRATIONS

BY T. G. BUNTING, B.S.A., PROFESSOR OF HORTICULTURE

THE Horticultural Department of Macdonald College in co-operation with the College demonstrators held eighteen orchard demonstrations during the latter part of April and early May. The meetings were held in orchards in each section visited, and, after a general talk on the apple orchard, including choice of varieties, planting, management, etc., a practical demonstration in pruning was given, followed by the home manufacture of concentrated lime-sulphur wash, its dilution and then, with the addition of arsenate of lead, an application of this spray was made to the trees. Occasion was taken during these meetings to point out and discuss the common insects and fungous diseases of the orchard and their treatment. The bud moth, aphids, oyster-shell bark-louse, canker, etc., could be found in most of the orchards visited. In nearly all of these sections many small to medium sized orchards are growing and occasionally large orchards, but in general spraying has not been understood, and it is only recently that the growers have given it much

consideration. All these sections have many advantages for apple growing provided the right varieties are chosen and reasonable care is given to the trees thereafter.

In addition to the general discussion and demonstration, circulars containing brief information were distributed and it is hoped that increased interest will be taken in the orchards in future.

The following is a list of places where meetings were held and the number of people in attendance:—

Scotstown.....	35
Sawyerville.....	12
Lachute.....	5
Calumet.....	13
Hemmingford.....	15
Valleyfield.....	10
Sherbrooke.....	6
Compton.....	14
Magog.....	15
Way's Mills.....	3
Beebe Junction.....	16
Dixville.....	14
Danville.....	16
Melboro.....	15
Gore.....	12
Denison's Mills.....	15
Sweetsburg.....	40
Cowansville.....	14
Total attendance.....	270

ONTARIO

SOME FACTS AND FIGURES IN REGARD TO SILO CONSTRUCTION

THE following article, contributed to THE AGRICULTURAL GAZETTE by Mr. R. Austin, B.S.A., District Representative for Welland county, is the result of a silo investigation conducted in

that county by the writer. The figures, while of a more or less local nature, should prove of interest to all readers interested in silo construction.

That the silo has come to the farm

to stay cannot be disputed—the only drawback being that it has not come to nearly enough farms. Those who have been so fortunate and far-sighted as to erect substantial silos are, almost without exception, very enthusiastic about its value in saving feed, preserving it in a better and more palatable condition, and ensuring increased profits thereby.

Experience has shown that there are many ways in which a silo is of advantage in successful farming. A few of these advantages are as follows:—

1. Silage is cheaper and more convenient than fodder corn.

2. A given amount of corn as silage will produce more milk and beef than the same amount shocked and dried.

3. Space is saved, as 10 tons of silage occupy the same space as one ton of hay.

4. Pasture acreage can be reduced by the use of the summer silo.

5. Silage is not hard to handle and may be fed, if proper care is used, to all kinds of stock.

KINDS OF SILOS

A great many adhere to the stave silo, others become impressed with the greater longevity of the concrete structure, while a few are erecting the more pretentious glazed tile. The chief question to be decided is whether the silo will preserve the corn in good condition or not, and after that comes the consideration of cost. Cheapness in the first cost may appear like a saving of money, but will usually prove the opposite, in a silo that will be tumbling to pieces in a few years. Moreover, the wooden silo is not so much cheaper than the concrete as is usually supposed. Out of a report obtained from the owners of 12 stave silos in this county, the average cost was found to be \$189, while the

average of 21 concrete structures was \$191—a very small difference indeed. These were all of various sizes. In comparing the difference in cost of silos of the same size, we found the following:—

Size of Silo.	Variety.	Cost.
30' x 12'.....	Stave.....	\$175
30' x 12'.....	“.....	100
30' x 12'.....	“.....	208
30' x 12'.....	“.....	250
30' x 12'.....	“.....	95

Making an average of \$165.60 for the stave.

30' x 12'.....	Cement.....	\$210
30' x 12'.....	“.....	180
30' x 12'.....	“.....	217
30' x 12'.....	“.....	158

Making an average of \$191 for the cement.

In many cases, however, the hauling of the gravel, sand and cement, and much of the other work was done by the farmer himself, thus saving considerable expense and bringing the average cost of a concrete silo down to about that of a stave.

Only two steel silos were found in the county, \$262 being the average cost of this style. There were 3 glazed tile structures, costing about \$316 each, these are more expensive than the other styles, but of a much more finished and imposing appearance. From such a small number, however, it was impossible to obtain any conclusive information, and these had not been very long in use.

In regard to the keeping qualities of silage in stave and concrete silos, most of the owners of both sorts reported a slight freezing for a few inches in, but mainly agreed that the ensilage remained in good condition throughout the winter. Thus it would seem that a stave silo would be fully as good as a concrete, but when we realize how much longer the latter will stand, it would seem to be good policy to prefer it to the stave.

Following is a list of some of the figures for building stave, concrete, steel and tile silos respectively.

board of directors for the Embro Fair. He asked if it would be out of place to offer a prize at the Embro Fair for the best collection from any school in the township. I assured him it was quite in order, and I would be only too glad to do what I could to advertise it. He asked what would be a suitable prize, whether it would be wise to pay cash, or furnish the school with some useful article. I suggested a Babcock tester for the school, a suitable cupboard for keeping agricultural bulletins which would be supplied by this office, or a number of copies of the best standard pictures. He was strongly in favour of the first mentioned prize, and intends taking the matter up with the other directors at their next meeting."

GLENGARRY COUNTY

D. E. MacRae, B.S.A.:—

"Last week we had twenty-six enquiries about the treatment of smut in oats, also nine for the treatment of scabby potatoes. Six farmers called asking for individual instruction in the planting of young apple trees and we went to each man's farm and showed the owner how to prune and plant a young tree. Four of these men also asked that we choose the location of the orchard. From twenty-six to forty-five were the number of trees planted."

"Last week the Junior Farmers' Association met and decided to do the work under our direction of collecting the money for the Roxborough School Fair prize list. This includes the five dollars from each school and the asking of contributions from prominent men."

GREY COUNTY

H. C. Duff, B.S.A.:—

"We are still receiving many requests from rural school children in particular for a number of bulletins that we had listed on our school premium circular. As the result of this we have mailed since the first of January 556 bulletins."

CARLETON COUNTY

W. D. Jackson, B.S.A.:—

"The press bulletins sent to this office from time to time have been used in the local papers with some slight additions and we find that the demand for bulletins and reports as mentioned in these articles is quite extensive throughout the county."

"I would like to call your attention to the bulletin issued by the Department of Entomology of Ottawa on the 'Army

Worm.' This perhaps will give you an idea of the work which we had with the 'Army Worm' last year and the damage which it did in this vicinity."

WATERLOO COUNTY

J. S. Knapp, B.S.A.:—

"On Wednesday and Thursday we were measuring the fields in the Acre Profit Competitions. It was very encouraging when visiting the boys to find that they are putting into practice some of the things we tried to teach them in the winter short courses. The man who was president of the class has pruned his orchard, is keeping milk records and a record of the cost of feeding a pen of eight or ten hogs. Besides this, he is entering the Acre Profit and Hog Feeding Competitions. The other fellows that we visited are practically all trying something new. Speaking of junior farmers' work reminds me that a poultry competition would, I believe, take well with our boys. Could it not be arranged for a pen of fifty or one hundred hens, allowing 50 per cent for profit shown and 50 per cent for the flock, the prize being a free two weeks' course in poultry at Guelph? Two-thirds of the fellows in our class I believe were interested in poultry. It may be too late to start this year, but if the idea is worth anything, it might be kept in view for another year."

"Our Junior Farmers' Picnic at Elora on Thursday proved a great success. Although it was very wet in the morning, it cleared up by noon. All but about four or five of the boys were present. The committee arranged practically all the details of the picnic themselves."

"The Holstein breeders had their first executive meeting Saturday afternoon. At this meeting it was decided to push the weighing and testing end of the business so that we may have some record to show when the club offers cattle for sale. A visit is to be made to all the members' and prospective members' places by the president, secretary, director for the district and myself. The object of this visit is to inspect the stock, so that we will know exactly the class of cattle each member has. At the same time we will urge them to weigh and test their milk and will find out the number of cattle they have for sale and any other particulars worthy of note."

MIDDLESEX COUNTY

I. B. Whale, B.S.A.:—

"The pupils asked a number of questions regarding the work, and it was quite common to be kept over one half hour at one

school answering questions about preparing soil, the depth to plant the different seeds, how to make collections of weeds, weed seeds, how to fix a sheaf of grain to best advantage, the best feed for the chickens, the size of potatoes for the fair, and numerous other questions about the school fair. At one school there were two or three pupils wanting to ask questions at once, and from school work it drifted to general farming, the variety of corn to plant in the field, how much to plant per acre, the best depth to plant potatoes, the thinnest hulled oats, what variety we thought best for that district. The questions then drifted to live stock, they wanted to know how to feed the colt and the calf, what breed of cattle we thought was best for milk and butter, how much milk should a good cow give in a year, how much it costs to feed a cow for a year. It ended up by ten or twelve of the pupils deciding that they would weigh the milk at home night and morning from each cow to find out which was the best. When they decided to do this much, I promised that if they wanted milk tested for butter fat, we would be pleased to do it for them. It was certainly a pleasure going around to the schools this week, as the pupils were particularly interesting. It may seem that we have plenty of time on our hands when we make two trips delivering the material. However, such is not the case, as this delivery was the potato war plots which we had not arranged for in time for the other delivery, and I began to think at the end of the week that it was time well spent. Visiting the schools the first time the pupils are shy and backward about asking questions and the more we become acquainted with the pupils the more good we can do."

RENFREW COUNTY

M. H. Winter, B.S.A.:—

"Our hatch of chickens came off on Friday last. We took this occasion to have a poultry exhibit in our window which attracted much attention. We had several callers inquiring about incubating chickens, suitable feed, etc. Anything like this of a practical nature seems to impress the people.

"The War Plot idea is migrating from the country into the town. I was approached by Mr. Bryan, Principal of the Collegiate Institute, and asked to address the Institute boys on War Plots. The boys have decided to cultivate potatoes on a vacant lot in town. This was used last year for school gardens in connection with the Community Movement. Several of the boys are also growing War Plots at home. We are providing the seed for those boys who wish to grow War plots."

LENNOX AND ADDINGTON COUNTIES

G. B. Curran, B.S.A.:—

"There will be a lot of corn grown for husking in this county this summer, in fact more than there has been for perhaps ten years. At that time nearly every farmer grew an acre or two of flint corn for husking, but owing to the scarcity of labour very little corn for husking has been grown of late years. This year I conducted a 'GROW AN ACRE OF FLINT CORN CAMPAIGN' through the local newspapers, and to my personal knowledge over 100 bushels of Longfellow Flint Corn has been purchased in this county for this year's sowing. This should sow at least 500 acres.

"Tuesday, May 25th, I visited the farm of Mr. Leo Flynn of Enterprise, the young man who grew 105 bushels of Longfellow seed corn on an acre of land last year. He was preparing another field for corn and showed me the field where he grew the corn last year sown with O.A.C. No. 72 oats. Mr. Flynn also built a new poultry house last fall, 30 feet by 16 feet on a cement foundation 3 feet high and a straw loft overhead for ventilation, and a front one-third cotton and one-third glass. This is the Lennox Poultry House and was built according to plans sent out from this office. Mr. Flynn has about 150 pure bred Rhode Island Red chickens hatched, and with his 25 old hens will winter about 100 birds, and next spring will be prepared to sell eggs for hatching to farmers in his locality at a reasonable price. I also looked over a field of about 20 acres that required drainage, being flooded with a spring at the upper end which overflows most of the season. He hopes to get the tile put in this fall. Mr. Flynn has also gone into pure bred Yorkshire pigs and high grade Shorthorn cattle and is one of the most promising young farmers in the county.

"During the past week we held two mustard spraying demonstrations. On Tuesday, June 8th, we sprayed 10 acres of oats very badly infested with mustard on the farm of Mr. J. Clarke, three miles south of Napanee. Thursday, June 10, we sprayed about 5 acres of oats on the farm of Mr. J. Spafford, Switzerville. The mustard in this case was so thick that one could not see the oats. We used in both cases 80 pounds of powder, Iron Sulphate and one barrel of water."

SIMCOE COUNTY

J. Laughland, B.S.A.:—

"I attended a meeting of Allenwood Farmers' Club on Friday evening and addressed a very interested gathering of about sixty farmers, taking up the subjects of Corn and Eradication of Weeds. Some

of the clubs are doing exceptionally good work as you will see from the following:—

‘ORILLIA, May 15th, 1915.

‘Dear Mr. Laughland:—

‘Our officers for the present year were elected at the last meeting. They are: Geo. Hewitt, Hon. President and Membership Clerk; A. T. Reid, president; R. W. Holmes, 1st vice-president; T. F. Swindle, 2nd vice-president; R. A. Lehmann, secretary-treasurer; Fred Holmes, hay seed buyer; Geo. Hewitt, corn seed buyer; R. A. Lehmann, botanist, and John Ross, entomologist.

‘The club with us has been a success the past year and all preceding years. We have started during its existence a Beef Ring, a Woman’s Institute, a Rural Mail Route, a neighbouring Farmers’ Club, a Telephone Association, a Ploughing Association, all of which are appreciated benefits. Besides the above we have got acquainted with each other and learned to appreciate our fellows.

‘Yours truly,
(Signed) ‘R. A. LEHMANN.’”

PEEL COUNTY

J. A. Carroll, B.S.A.:—

“During our short courses at Bolton I gave the boys a brief course on Farm Management and Bookkeeping and got them interested in keeping a set of farm books. What we think will be a simple and efficient set of forms was devised and made up and six of the boys have undertaken to keep them under our guidance. These were taken out and complete inventories of real estate, live stock, implements, etc., were taken and the young farmers given a start. I have great faith in this commencement and expect to be able to make a valuable report in a year’s time.”

HALTON COUNTY

H. R. Hare, B.S.A.:—

“The first annual picnic of the Halton Women’s and Farmers’ Institutes was held at Milton on Wednesday, June 16th, about three hundred being present. After an early dinner the two institutes held business meetings separately. The idea of combining picnic and meetings on the same day resulted in greater interest in the latter. This was especially fortunate this year, as Superintendent Geo. A. Putnam has suggested a reorganization of the farmers’ institute and a large number was needed to discuss the proposal.

“The closing feature of the day’s outing

was a baseball game. This game was unique in that the opposing teams represented a new form of organization, namely, the Junior Farmers’ Improvement Associations of Halton and Wentworth, respectively. The members of such associations must have taken the four weeks’ short course held in their county by the Department of Agriculture. As the movement grows it is expected that greater intimacy and a good spirit will be developed between the farmers of neighbouring districts.

“I also called on a number of the Junior Farmers. In the afternoon at 4.30 the Junior Farmers met for a baseball practice. It surely is encouraging to note the interest taken in the organization of the young farmers. It has been proposed by one of our boys that we go over and play Ancaster Junior Farmers. I understand that the Ancaster Junior Farmers have organized for the same purpose. At the meeting after the baseball practice, it was decided to adopt ‘The Canadian Countryman’ as the official organ of the Junior Farmers, taking advantage of their reduced rate of 25 cents and contributing the other 50 cents toward the treasury of the Junior Farmers.

“The interest exhibited by the pupils in the school fair work does not seem to be lessening. It seems that in nearly every home in the district where the school fair work is being pursued, the pupils are full of questions whenever the representative or assistant from this office appears.”

YORK COUNTY

J. C. Steckley, B.S.A.:—

“Our Caterpillar contest ended with the collection of over seventeen thousand nests. The following boys won the five prizes:

	Nests.
1st. Herman Rogers.....	4,030
2nd. Fred Lister.....	3,554
3rd. Aubrey Brook.....	3,134
4th. Harry Keith.....	2,553
5th. Gordon Hunter.....	1,254

(NOTE:—This competition was announced on page 449 of THE GAZETTE for May, 1915.

“We also attended a business meeting of the Woodbridge branch of the Junior Farmers’ Improvement Association and arranged for our summer meeting and picnic to be held on June 15th.”

HALDIMAND COUNTY

G. L. Woltz, B.S.A.:—

“Considerable time has been spent among the members of the Junior Farmers’ Improvement Association for the joint purpose of keeping in direct touch with

those taking part in the various competitions and in trying to work out a policy for the association. As a phase of the latter, I am considering the advisability of preparing a compact and neat exhibit of the more important phases of our work for the local fall fairs. This would be arranged in a small tent in some conspicuous place on the fair grounds. The tent would bear a suitable banner, and would be operated largely by the president and secretary. In addition to the prominence it would give the Junior Farmers and this office, I believe it would be a medium in working up a good class for the 1916 short course.

"We have just finished placing the variety tests for corn and have them well distributed over the County. Four of the experiments were placed with the junior Farmers the balance with outsiders. One of the effects of our six weeks' course was to stimulate a spirit of investigation. Anything in the line of a feasible experiment may be readily placed with our Junior Farmers, whereas outsiders often retain a high degree of indifference."

PRINCE EDWARD COUNTY

A. P. MacVannel, B.S.A.:—

"During this week the record shows that over 115 persons visited the office with reference to the following inquiries: diseases of poultry, corn experiments, regarding soluble lime-sulphur, spray materials, treating seed potatoes, obtaining work on farms, plans of barns and stables, drainage survey and Drainage Act, management of bees, obtaining seed corn, methods of planting ensilage corn, pruning, spraying for caterpillars, rearing chickens."

VICTORIA COUNTY

A. A. Knight, B.S.A.:—

"I am keeping a record of the number of calls which are made to the office for one thing or another. If this record were continued from year to year, it would be a valuable index as to increase or decrease of the interest in the office. I think it would be a good thing for all offices to do. It would mean some work of course, and considerable attention to details, but as I stated it would be valuable."

MANITOULIN ISLAND

I. F. Metcalf, B.S.A.:—

"I told you in my last letter about the sale of the wool which the Manitoulin Marketing Association made, stating that 18 cents was being paid locally at the time of the sale. I find that figure too high as only 17 cents was being paid here and 15 cents on other parts of the Island, which

makes the sale show up better yet. The Association is paying the farmers the highest price that was offered locally, which was an average of 20 cents, but being paid on a graded basis will run from 18 cents to 23 cents—the balance after expenses are paid will be carried by the Association as profits."

DUFFERIN COUNTY

H. A. Dorrance, B.S.A.:—

"I have been approached by a number of farmers to take them on a tour of inspection to a number of farms whose owners have been particularly successful in different lines, such as, live stock, corn growing, underdrainage, good types of buildings, etc. The party would probably consist of three cars and if you have any suggestions as to places where they might be taken on a trip of this kind, I would be pleased to receive same so that I can take the matter up in detail with those interested."

NORFOLK COUNTY

Geo. Wilson, B.S.A.:—

"We have had several calls from farmers to inspect the damage done by the frost the latter part of last week and by insects and disease to fruit and to field crops. Spy and Greening blossoms are in some cases injured by the frost. Other varieties seem to have escaped, but the June drop will tell. Prospects in this County are that the apple crop will only be about 40 per cent of that of last year."

DUNDAS COUNTY

E. P. Bradt:—

"We have been doing spraying to control mustard, using both the bluestone and iron sulphate. In the field which was sprayed the superiority of the iron sulphate over bluestone was quite marked. We purpose taking another field during the coming week and spray half of it leaving the remaining half unsprayed as a demonstration and will arrange to put up a small sign to draw the people's attention to this demonstration. The mustard seems to be particularly bad in this district this year, probably due to the fact that the cold, dry weather has held the grain back and given the mustard a chance to grow."

BRANT COUNTY

R. Schuyler, B.S.A.:—

"A meeting of the Junior Farmers' Improvement Association was held in the office of the district representative for Brant at Paris on June 12. Although the attendance was light some important work was done. Two of the men at the meeting

decided to test their cows. As two other members had previously made this start, there are now four of them in this work. They were supplied with sheets for recording weights and the cows will be tested monthly. One of the members has promised to spray his potatoes for blight. There are now six who have consented to enter the feeding hogs for profit competition, and the secretary is taking up the matter with those who were not present at the meeting. The boys unanimously adopted the Junior Farmers' Associations' pins. As a committee had previously been appointed to wait on the agricultural society boards of the county to make arrangements for judging classes at each fair, it was decided that I should coach the boys a little before the fair season. Arrangements will be made at the September meeting for a class in this work.

"I made one small survey for ditches of about three thousand feet in Oakland. I also assisted one of our junior farmers in

planting his three acres of Grimm alfalfa seed. We are experimenting with four such plots in the county this year and have three other plots, two of which were planted last year and one in 1913.

"The record book shows that during the past two weeks we have received nineteen personal calls from farmers for information concerning tent caterpillars, wireworms, aphids, underdrainage, mustard spraying, treatment of potato scab, milk testing, fungous diseases of plums. We also made six visits upon request re similar questions. Also received a few letters and some telephone calls, making a total of twenty-nine during two weeks.

"The Jersey Breeders of the County have been discussing the organization of a Jersey Breeders' Club, and am writing circular letters to each breeder outlining this, and I expect will have a meeting in a few weeks for the purpose of organizing a Club."

SASKATCHEWAN NOTES

The Public Service Monthly for June gives the schedule for "The Better Farming Train" from June 14 to July 10th. The train consists of four sections in eight cars. The Field Crop section includes two lecture cars, one for reception and discussion and the other for demonstrations. Two cars are also devoted to Domestic Science, one for lecturing and demonstration and the other a nursery car where children will be entertained while their parents or guardians take in the other parts of the train. Poultry raising as well as cooking, sewing, home nursing, etc., will be a feature of this section. A general demonstration section consists of a car of models of farmsteads and farm buildings, showing methods of arrangement of fields, buildings and equipment. A special section is devoted entirely to boys and girls, in which illustrated lectures are given on western birds, habits of insects and other topics relating to the outdoor life.

The *Monthly* states that the thirteen creameries operated by the government during the winter of

1914-15 produced 255,805 pounds of butter against 234,858 pounds the previous winter, an increase of 20,947 pounds, or 9 per cent. Supplementing this information Deputy Minister A. F. Mantle in a letter to *THE AGRICULTURAL GAZETTE* says "The make for the first six weeks of the summer season, a period that ended June 12th, shows a still more gratifying increase, the figures for May being 156,100 pounds, against 139,600 pounds in May, 1914, an increase of 16,500 pounds, and for June 1st to 12th, 135,000 pounds, against 99,200 pounds in 1914, an increase of 35,800; showing a total increase of 52,300 pounds, or 26 per cent. Since the publication of *The Monthly* creameries at Canora, in north-eastern Saskatchewan, and Kerrsbert, in west-central Saskatchewan, have been taken over. The Canora creamery opened for business on May 24th and the Kerrsbert creamery on June 21st."

The Stallion Licensing Board up to May 1st, 1915, had examined 1,349 heavy horses and 166 light horses, of the former 896 were Clydes-

dales, 317 Percherons, 60 Belgian, 35 Shires and 11 Suffolk Punch and of the latter 108 were Standard-bred, 25 Hackney, 12 Thoroughbred and 4 Coach breeds. Of the total examined 67 were rejected. The average

weight of the heavy horses was 1,656 pounds and their height 16 hands $3\frac{1}{2}$ inches. The average weight of the light horses was 1,120 pounds and their height 15.3.

BRITISH COLUMBIA

WOMEN'S INSTITUTES COMPETITIONS

THE Department of Agriculture has announced the following competitions for Women's Institutes:

COMPETITION No. 1

Prizes for institutes having the best average attendance at meetings during the year, based on membership as returned to the Department on the list dated June 30th, 1915. Books to form the nucleus of a library to the value of:—1st prize, \$30; 2nd prize, \$15.

COMPETITION No. 2.

Prizes for institutes having the best programme for 1915. Books to form the nucleus of a library to the value of:—1st prize, \$20; 2nd prize, \$10.

COMPETITION No. 3

Prizes for the best papers by institute members on the following specified subjects:—Five 1st prizes, \$10 each; five 2nd prizes, \$5 each.

- (a) How to organize hot luncheon in the schools.
- (b) Women's responsibilities to the Empire.
- (c) The development of home industries in British Columbia.
- (d) The possible influence of women's institutes on the life of the province.

COMPETITION No. 4

For junior members. Prizes for the best papers submitted by junior members, on the following specified subjects:—Five 1st prizes; five 2nd prizes. (Nature of award to be determined later.)

- (a) Our share in institute work.
- (b) A daughter's duty in the home.

The length of the essays are not to exceed two thousand words, and an average of fifteen hundred is declared to be preferable.

The programmes will be judged chiefly with a view to the merit of their arrangement and subjects of discussion for the year, although due

allowance will be given for general get-up and style.

NO PROVINCIAL CONVENTION

There is to be no provincial convention of Women's Institutes this year, but district conferences will be held towards the end of August as follows:

Vancouver Island, at Victoria.
Kootenay, at Nelson.
Okanagan, at Salmon Arm.
Lower Mainland, at Chilliwack.

The Department will pay transportation charges and a sum of \$3.00 per day for the expenses of one accredited delegate from each Institute. Other delegates can attend at their own expense, or at that of the institute represented.

The following subjects for papers and discussions at the conferences have been recommended by the Advisory Board:—

1. The duty of parents in respect to the medical inspection of school children.
2. What is eugenics? A plea for racial improvement.
3. Co-operation between producer and consumer.
4. Business methods for women.
5. Recreation for young people in rural districts.
6. The development of home industries in British Columbia.
7. Study courses for women's institutes.
8. The utilization of libraries in rural districts.
9. Opportunities for women in the twentieth century.
10. Privileges of women in the twentieth century.

The Department has arranged to print the programmes for each conference.

PART III

Rural Science

MATERIAL SUPPLIED TO BOYS' AND GIRLS' CLUBS AND RURAL SCHOOLS

Recently a request was sent to the Department of Agriculture in each of the provinces for a statement of the material that had been supplied this season to the boys and girls of the rural schools, to boys' and girls' clubs and to junior farmers' institutes, etc. Each province was asked to give:—

1. Classes and variety of material supplied.
2. Number of school fair districts to which each class of material was sent.
3. Quantities of each material sent to each district.
4. Conditions of distribution.
5. Brief reference to variations, if any, from distributions of former years.

The following summaries were received from the different provinces engaged in the work:

NOVA SCOTIA

BY L. A. DEWOLFE, DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

THE Department of Education has supplied small quantities of seed and plants to children's clubs these last two years. In addition the Department of Agriculture has, this year, supplied about \$100 worth of eggs for hatching.

We have poultry clubs, potato clubs, strawberry clubs, garden clubs, and improvement clubs.

This year we have urged the pupils to buy their own seeds. Where the teacher believed that outside assistance would really advance the work, however, we have given rather sparingly, as follows:—

Eggs, two to four sittings to a school, total 300 sittings.

Strawberry plants, 50 to a child, 200 to a school, total 6000 plants.

Potatoes, one-half bushel to a school, total 20 bushels.

Oats, shrubs, seeds, etc., about \$40.00 worth (total).

In addition to the foregoing, the Experimental Farm at Nappan sent a three pound bag of potatoes to each rural science teacher. From the Farm was also sent samples of oats, wheat and barley.

Lack of funds prevented our being more generous than this outline shows.

MACDONALD COLLEGE

THE DIVISION OF CEREAL HUSBANDRY

BY PROF. JAMES MURRAY

THE material supplied from the Cereal Husbandry Department this year to school children consisted of 192 samples of Quebec No. 28 corn, 151 samples of Daubeney oats and 59 samples of Mensury barley. In the case of corn sufficient seed was supplied to plant a block of 100 hills, and of oats and barley sufficient seed for one one-hundredth of an acre.

The distribution has been in all cases in the hands of the Macdonald College demonstrators and the crop produced is intended for exhibition at the school fairs in the various districts. The demand for all three kinds of seed has been in excess of the available supply. The shortage in oats and barley has been usually made up by the demonstrators with good seed purchased locally, or from a seedsman. Unfortunately a supply of Quebec No. 28 corn is still not obtainable in commerce so that we have had to regulate the amount sent to each district by the amount available for distribution from this Department. Quebec No. 28 corn is a

pedigreed strain originated by the Cereal Husbandry Department of Macdonald College. It is a twelve-rowed yellow flint variety with small ears and remarkably early for such a high yielding grain variety. A few lots were distributed to school children in the spring of 1914, and last spring sufficient seed was distributed to plant 192 plots. The available supply was not nearly sufficient to meet the demand.

There have been few restrictions placed on those who received the seed. All who get free samples are required to exhibit part of the product at the school fair in the fall. They are also strongly advised, in the directions sent by the Department with the samples, to take good care of the produce of the plots to insure its being valuable for seed, and, in the case of corn to plant it at least forty rods from any other variety to prevent crossing. An effort has been made to impress upon them that the material they receive is valuable and will well repay any extra trouble they may bestow on it.

THE DEPARTMENT OF HORTICULTURE

BY PROF. T. G. BUNTING

THE Horticultural Department of Macdonald College distributed, during the past spring, flower and vegetable seeds to

school children in the province of Quebec, through the College demonstrators, as follows:—

DEMONSTRATOR	Address	Flower Seeds, Collection of Six Varieties	Potatoes, 10 lb. Lots	Tomatoes
J. K. King.....	Shawville	150	250	...
E. A. Lods.....	Cowansville	130	100	...
A. E. Raymond.....	Cookshire	60	170	30
A. F. Emberley.....	Ayer's Cliff	50	100	120
R. E. Husk.....	Huntingdon	140	170	70
C. H. Hodge.....	Richmond	125	50	40
G. W. MacDougall.....	Lennoxville	75	80	20
V. B. Durling.....	Lachute	70	50	75
Total.....		800	970	355

The flower seeds consisted of a collection of the following, two varieties of sweet pea, two of asters and two of phlox.

The potatoes consisted of a ten pound sample of Green Mountain or Irish Cobbler, being sufficient to plant a plot 20 feet x 20 feet. Last year one pupil secured a quantity from his plot equal to a yield of 540 bushels per acre.

The tomatoes consisted of a liberal packet of seed of either Bonny Best or Chalk's Jewel.

In addition to the above, fifty packets of melon seed, "Montreal type", were sent out and distributed where they were likely to be properly cared for, also fifty collections of

vegetable seeds, consisting of ten different varieties, were sent out for school gardens.

Complete directions for the culture of the flower and vegetable seed were sent out with the seed, so that each pupil will have at hand the information necessary for the planting of the seed and its care until the crop is exhibited at the school fair.

The department also assists the demonstrators in this work by giving as prizes, plants, such as strawberries, raspberries, bush fruits, and herbaceous perennials. It is thought that this is much more likely to keep up the interest and enthusiasm of the pupil than cash prizes.

THE POULTRY DEPARTMENT

BY M. A. JULL, B.S.A., MANAGER AND LECTURER

THE Poultry Department of Macdonald College has distributed, in 1915, 610 settings of hatching eggs to the children in the schools of the province. The distribution of the eggs was conducted by the college demonstrators located at Shawville, Lachute, Cowansville, Huntingdon, Richmond, Lennoxville, Ayer's Cliff and Cookshire.

The eggs were of the barred Plymouth Rock breed.

The number of settings distributed in each of the following districts was: Clarendon and Bristol 75, Chapeau, Sheenboro, Onslow, Chichester and Allumette Island 70, Lachute 50, Hemmingford 13, Howick 33, Huntingdon 35, Cowansville 40, Bedford 26, Granby 3, Richmond 50, Lennoxville 50, Eastman 25, Ayer's Cliff 75, Cookshire 35 and Scotstown 30.

The conditions of distribution are included in the application blank which reads as follows:—"I beg to make application for one setting of

hatching eggs offered free by Macdonald College. I agree to do the best I can in caring for the eggs and chicks and I promise to show all of the chicks I raise from these eggs, but no others, at a fair provided for same.

"In return I offer Macdonald College the choice of one chicken from the flock. It is understood, however, that where five chickens or less are raised from one setting Macdonald College will not take a chicken."

The selection of the students to receive the eggs was made by the college demonstrators in co-operation with the principals of the academies and the rural school teachers.

A four-page pamphlet was given to the children receiving eggs, this furnished directions for the handling and care of the eggs, the choice and care of the hen, the construction of the nest, methods of marking the chickens and feeding.

ONTARIO

SUMMARIZED FROM REPORTS RECEIVED FROM THE DISTRICT REPRESENTATIVES

THE information received from the District Representatives in response to the request quoted at the head of this series of reports was varied and interesting. There were minor differences in the conditions of competition for prizes, but the character and quantity of seed supplied free to the pupils of the rural schools were very similar, generally consisting of:—

1. O. A. C. 72 Oats.....	1 lb.
2. O. A. C. 21 Barley.....	1 lb.
3. Potatoes (Empire State, Irish Cobbler, Delaware, Green Mountain, Davies' Warrior)...	3 lb.
4. Sweet Corn (Golden Bantam, generally).....	1 oz.
5. Field Corn (Wisconsin No. 7, Bailey, Longfellow, etc.).....	2 oz.
6. Mangels (Giant Yellow Inter- mediate, Mammoth Long Red, etc.).....	2 oz.
7. Eggs (Barred Rock or White Wyandotte).....	1 doz.
8. Flowers (Sweet Peas, Asters, Phlox, Pansies, Gladioli, Nas- turtiums).....	Small package
War Plots (2 rods by 1 rod), seed potatoes.....	10 lb.

The produce of the war plots is to be sold and the receipts turned over to the Red Cross fund. In all cases one of the conditions of supply is that the products of the sown plot are to be exhibited at the school fair in the fall and that seed be saved for planting the following year. Each school was also expected to subscribe three dollars or more—and it was frequently more—to the school fair prize fund. There were few changes in the distribution this year from last, except that instead of the eggs being given free they were charged for at the rate of 25 cents a dozen, the proceeds being lumped and used for prizes.

The war plots were, of course, an innovation, but so well was the idea espoused that, taking the county of Dundas as an instance, it was esti-

mated that the plots in that district would yield 750 bushels, or upwards of a car-load worth somewhere in the vicinity of four hundred dollars. It is anticipated that the total yield from the war plots will be around 40,000 bushels, which, at 60 cents per bushel, will mean that \$24,000 will be turned over by the children of the province for the great patriotic fund. The Department, in recognition of the enthusiasm with which twelve thousand children have entered into the scheme, have decided to present the boy or girl in each county who produces the largest crops of potatoes with a silver medal.

Conditions for planting and cultivation and for the competitions were furnished in every instance and the children were required to work as much as possible without the aid of their parents. In many instances pupils are asked to select seed for next year's planting, and in several cases seeds were supplied for experimental purposes to young men who attended the short courses in agriculture.

It should be added that in every county or district distinct advancement has been made, the number of fairs, schools and pupils having been generally increased compared with previous years.

SCHOOL FAIRS, SCHOOLS AND WAR PLOTS

The following table gives the number of school fairs in each district, the number of schools embraced and the war plots sown. In five or six cases the number of schools included was not given in the returns. As regards the war plots, in one or two districts the idea was not acted upon, but in others that are not given in the table doubtless the plan was adopted, although the returns were not sent in.

DISTRICT	School Fairs	Schools	War Plots
Algoma.....	6	25	194
Brant.....	7	62	87
Bruce.....	7	68	384
Carleton.....	5	53	204
Dufferin.....	6	70	...
Dundas.....	4	60	540
Durham.....	6	73	212
Elgin.....	8	71	...
Essex.....	4	39	186
Frontenac.....	6	61	...
Glengarry.....	6	79	157
Grey.....	8	83	151
Haldimand.....	3	35	60
Halton.....	2	21	220
Hastings.....	5	50	130
Kenora.....	3	10	33
Kent.....	8	...	229
Lanark.....	6	56	...
Lambton.....	5	68	...
Leeds and Grenville.....	7	85	...
Lennox and Addington.....	10	...	...
Manitoulin.....	5	35	...
Middlesex.....	9	74	...
Norfolk.....	5	...	309
Northumberland.....	5	50	...
Ontario.....	9	77	60
Oxford.....	4	46	...
Peel.....	4	...	268
Peterborough.....	5	40	...
Port Arthur.....	4	14	46
Prince Edward.....	7	...	178
Rainy River.....	4	29	108
Renfrew.....	4	...	296
Simcoe.....	8	94	327
Thunder Bay.....	2	...	43
Timiscaming.....	5	25	...
Victoria.....	12	80	199
Waterloo.....	6	53	...
Welland.....	4	46	...
Wentworth.....	2	24	...
York.....	8	109	...
Total or province.....	234	1865	4621

For purposes of comparison it is interesting to note that last year the fairs numbered 148, the schools, 1,391 and the entries 75,602 against respectively as given above for this year, fairs 234, and schools 1,865. The attendance at the fairs in 1914 was 95,310 and the number of plots sown 23,872. The settings of eggs supplied free was 4,074 as compared with 6,722 this year at 25 cents each.

NUMBER OF PUPILS SUPPLIED WITH SEED AND EGGS

The following table gives the number of pupils who were supplied with each variety of seed and of eggs in each district:—

DISTRICT	Eggs	Potatoes	Oats	Barley	S. Corn	F. Corn	Mangels	Flowers	Vegetables	Wheat
Algoma.....	101	194	107	65	62	...	...	243	94	..
Brant.....	246	269	142	48	192	65	143	875	...	..
Bruce.....	264	424	...	...	180	90	180	460	...	..
Carleton.....	122	148	34	18	66	46	30	148	38	45
Dufferin.....	265	303	156	58	142	37	111	...	...	..
Dundas.....	202	264	89	38	175	65	143	438	...	..
Durham.....	225	265	106	32	183	61	86	197	...	..
Elgin.....	204	331	48	16	162	81	107	326	...	..
Essex.....	115	118	...	...	60	156	59	433	...	..
Frontenac.....	226	483	142	50	327	98	192	273	...	..
Glengary.....	238	638	232	205	356	142	347	393	...	..
Grey.....	289	358	146	63	173	54	126	179	187	..
Haldimand.....	90	161	39	12	48	17	68	146	...	..
Halton.....	80	...	36	9	50	16	59	189	...	..
Hastings (a).....	134	194	66	20	130	52	...	233	...	..
Kenora.....	29	71	14	17	8	...	...	26	53	29
Kent.....	188	333	47	20	93	85	90	293	...	..
Lanark.....	216	197	92	52	172	145	122	212	133	..
Lambton (b).....	96	...	76	31	86	195	...	185	166	..
Leeds and Grenville.....	264	267	109	49	*293	...	...	465	...	..
Lennox and Addington.....	339	372	46	26	129	83	86	316	...	..
Manitoulin.....	50	231	120	89	174	90	...	500	...	..
Middlesex.....	204	336	116	...	180	167	173	346	...	..
Norfolk.....	204	257	51	23	111	118	68	313	...	..
Northumberland.....	119	279	48	22	139	79	90	215	...	..
Ontario.....	255	432	92	43	235	53	167	592	355	..
Oxford.....	100	236	99	27	118	111	104	524	225	..
Peel.....	216	160	40	...	135	36	100	220	...	..
Peterborough.....	109	271	130	21	62	...	86	230	...	..
Prince Edward.....	241	586	183	107	126	217	219	...	...	35
Rainy River.....	...	262	49	51	77	...	...	242	...	78
Renfrew.....	107	290	84	21	105	67	86	252	...	88
Simcoe.....	245	374	234	76	217	95	133	541	95	..
Thunder Bay.....	19	29	7	4	...	...	...	12	35	..
Thurston.....	44	155	53	23	...	...	37	167	63	70
Victoria (c).....	93	286	202	...	462	367	391	1203	...	..
Waterloo.....	180	445	172	77	236	69	160	728	88	..
Welland.....	103	244	12	1	178	26	...	252	...	..
Westworth.....	80	185	17	8	27	25	24	124	...	..
York.....	420	328	134	89	248	111	156	48	236	..
TOTALS	6722	10796	3570	1511	5917	3119	3943	12549	1768	345

*Both kinds of corn.

(a) Also 75 sainfoin; (b) also 75 bushels of potatoes; (c) also 300 Emmer.

The District Representative of Port Arthur makes returns in bulk for each township, the totals of the four being 52¼ pounds of barley; 65 pounds of oats; 983 pounds of potatoes; 113 ounces of corn; 34 ounces of turnips; 12½ ounces of

mangels; 34 packages nasturtiums; 67 packages of sweet peas; 27 packages phlox; 36 packages of asters and 50 dozens of eggs. In addition Port Arthur gave out 458 pounds of potatoes for war plots.

MANITOBA

BY S. T. NEWTON, SUPERINTENDENT OF EXTENSION SERVICE, AGRICULTURAL COLLEGE

TO-DAY the watchword in education is vocational efficiency.

The demand for more practical studies in the schools of the towns and cities has led to manual training courses being established, and later large technical schools being built and equipped with expensive tools and machines in order that the pupils may be better equipped for entering the industries.

Practical education is just as necessary in the country as in the city. In the country the tools and machines are the land and the things that grow on the land, and the Department of Agriculture considers that the best means of making provision for this practical training and of inspiring the coming generation with a love of agriculture, and raising the industry to a higher plane in the estimation of the people generally, is to supply a part of this equipment free to the boys and girls so that they will have something that is their own and something that is well worth taking care of.

To this end boys' and girls' clubs were organized under the direction of the Extension Service of the Agricultural College three years ago, and each successive year sees a vast increase both in the interest and efficiency of the work. The 1913 clubs had a membership of 850. Last year nearly 2,000 were enrolled and this year over 5,000 deeply interested and enthusiastic boys and girls are taking part in the various contests.

One of the conditions imposed in organizing the clubs is that the work must be done on the home farm or garden, but much of the organization is done by the teachers, and practically every other interest in the district is behind the boys and girls in their farming operations and is ready to help them both in the matter of suggestions and in making pro-

vision for attractive prize lists for the fall fair, for the fall fair is really the big day in the history of these clubs.

Each member knows all about the fine points not only of his own chickens, but of those belonging to his companions as well, and there are hundreds of separate pens throughout the province—chickens from the eggs supplied by the government last year—and the juvenile owners of these pens are taking particular care that the strain is kept pure.

The impetus given to fodder corn growing is most pronounced. It is seen growing now in all parts of the province, whereas a couple of years ago only a few patches were in evidence. To such an extent has it been grown and found satisfactory that the Engineering Department of the College is preparing plans for the construction of silos, as it is recognized that next year the demand will be particularly large in this respect.

Last year being an unfavourable one in some parts of the province, we are not able to make many comparisons in potato-growing, but we do know of over a score of cases where the plot tended by the boy or girl, and thus receiving extra cultivation, was the only supply that came safely through the dry season, and has proved a splendid lesson in the advantage of cultivation for the conservation of moisture.

Previously, the girls were obliged to compete with the boys in these contests if they wished to take part at all, and they held their own to a remarkable degree, winning a great many prizes with their poultry and potatoes, and even in the pig-raising contest. This year, however, special contests in bread-baking, sewing, canning and preserving have been added for the girls, and farm me-

chanics for the boys, making eight contests in which club members may engage.

Among the 5,000 members taking part this year, the popularity of the contests are about in the following order, chicken-raising 3600; potato-growing, 3,000; fodder corn-growing 2400; sewing 2200; bread baking 1800; farm mechanics 1100; canning and preserving 900; pig-raising 200.

The material supplied by the Department of Agriculture was as follows,—One setting of pure bred eggs to one member of each family; ten pounds of Carman No. 1 potatoes to each member; a quarter pound of each of the following varieties of Fodder corn: North Western Dent, Longfellow and Minnesota 13; a half pound each of beans and peas for the canning and preserving contests; plans for a dozen projects in farm mechanics, and note books in which a full account of the work done is kept.

From last year's winners a dozen boys were chosen as the nucleus of a Junior Canadian Seed Growers' Association. Sufficient second generation Marquis wheat was secured from Seager Wheeler's famous prize winning stock to seed one-third of an acre, and the Field Husbandry Department of the college has prepared careful instructions in handling not only this year's plot, but in summer-fallowing for next year's crop, and it is just possible that the methods suggested here will have a wider application on these farms.

Next year it is proposed to arrange for one acre contests of various kinds for the members of the clubs who reach a certain standard in this year's competitions, and to supply eggs only to the new clubs, as it is felt that this year's clubs will already have made a pretty good start in

raising poultry and will have their own supplies.

In the distribution of this material the Extension Service has been ably assisted by the club organizers and club secretaries throughout the province. In the majority of cases the club organizers are the principals of schools, but they declare that the extra work done by them in connection with the boys' and girls' clubs is more than made up for by the increased attendance and renewed interest taken by the pupils in their other work.

The fact that these contests are carried on on the home farm has made the clubs the connecting link between the home and the school. It has led the parents to see that the teachers are interested in the children outside of school hours, and in turn the parents have become more interested in the work of the school in school hours.

Wherever boys' and girls' clubs have been organized, the people are unanimous in saying that no movement has had a greater effect in arousing interest in better farming. By making membership in these clubs voluntary, encouraging a high standard of excellence, and insisting that the actual business of the club be conducted by the girls and boys themselves, they have seen that it is a business proposition as well as an interesting form of recreation. By giving them a working interest in the farm and an assurance that the products of these contests are to be their own, they have an interest in the home and in the farm that cannot be estimated in dollars and cents.

The success of the boys' and girls' clubs owes much to the members of the Agricultural College staff and to the Departments of Agriculture and Education for their co-operation, assistance and encouragement.

UNIVERSITY OF SASKATCHEWAN

BY W. J. RUTHERFORD, DEAN OF THE COLLEGE OF AGRICULTURE

ALTHOUGH our plans are not yet matured for assistance to work, the University has this spring sent out small samples to teachers writing in here and desiring seeds for school garden work. To eight schools we have sent the following seeds: 2 packages of Red

Fife wheat; 2 of Banner oats; 5 of Manchurian barley; 6 of Marquis wheat; 4 of Winter Rye; 5 of Victory Oats; 3 of Gold barley; 5 of Solo peas; 5 of Western Rye grass, and 4 of Grimm's alfalfa. We hope next year to give this phase of the work more assistance.

BRITISH COLUMBIA

BY W. NEWTON, B.S.A., PROVINCIAL SOIL AND CROP INSPECTOR

THE need for boys' and girls' clubs or like associations has been felt in British Columbia. No distinct clubs of this nature have as yet been formed, but a foundation has been laid by creating within our Farmers' Institutes a junior phase. The necessity of making use of the older members of a community to offer encouragement and suggestion to any boys' and girls' organization is apparent. The Department is thus making use of the executive of the Farmers' Institutes to assist in stimulating interest on the part of the boys and girls. Arrangements are now being made whereby the junior division of the Farmers' Institutes will be formally organized into clubs, although they will always have some connection with the Farmers' Institutes, unless it proves desirable that they should be distinct.

The work is confined to potato competitions again this year. Junior potato competitions were held by twenty farmers' institutes last year. The number has increased for 1915 which is a good indication that there is an increased interest in this work.

A bulletin containing a brief description of the approved methods of potato culture and the rules and regulations of the competition has been sent to each boy and girl entered in the competitions. In the same bulletin is a summary of last year's competition. We believe the publication of the results in this manner is a great incentive to increase the interest in the competi-

tion. Possibly it plays as important a part as the awards.

The awards this year are based on two scores, a field score and a score on a financial statement. The financial statement is submitted to us on card forms. These card forms when filled out by the competitors are simple statements of the expenses and receipts in handling the plots entered in competition. All competitors use the uniform tariff of charges contained on the card and the statements must be certified correct by a representative of the local Farmers' Institute.

Special provision has been made for awards at the Provincial seed fairs at New Westminster and Armstrong for harvested exhibits from the boys' and girls' plots. To encourage competition, all transportation charges are paid by the Department to the nearest Provincial fair. Provision has also been made that awards for harvested exhibits be given where local seed fairs are held by Farmers' Institutes.

Wherever possible, the opportunity is taken to talk to the boys and girls after awards have been given. Not only is the opportunity ripe to discuss the mistakes made and the lessons learned through competing, but this year the opportunity will be taken to discuss the introduction of other crops into the competitions. The value of organization on the part of the boys and girls themselves will be pointed out, and assistance will be given to organize.

SUMMER SCHOOLS FOR TEACHERS

The following are the announcements of the summer schools for teachers to be held in each of the provinces during July and August, 1915.

PRINCE EDWARD ISLAND

THE summer school for teachers opens July 12th and will last two weeks. Each teacher attending will be paid railway fare and a bonus of six dollars. Subjects

are agriculture and nature study, drawing, singing and pedagogy. The best instructors available will be secured.

NOVA SCOTIA

THE summer session of the Rural Science Training School will be held at the Provincial Normal and Agricultural Colleges, Truro, N.S., 7th July to 5th August, 1915. The syllabus embraces agriculture, biology, entomology, botany, horticulture, zoology, chemistry, woodwork, nature study, mechanics, weather work, bird study, brush work, etc. The hours will be from 9 a.m. to 4 p.m., but extra time will be given if required to bacteriology, plant-diseases, etc. Field excursions will be conducted in

connection with the work in botany, bird study, etc., and may be participated in by interested students whether enrolled in the courses or not. Tuition is free. Students who do satisfactory work will be recouped their travelling expenses and, if they do well in three subjects, will receive a cash bonus of \$10 and be presented with one or two helpful books or a year's subscription to two Nature magazines. Applications were to be in by June 30th. Various awards will be made to teachers ranging from \$15 to \$75.

NEW BRUNSWICK

TWO summer schools of agriculture will be held this year in New Brunswick under the control of the Minister of Agriculture, the Hon. J. A. Murray—one at Woodstock in the Fisher Vocational School, and one at Sussex in the Agricultural School building recently completed.

Practical work, either in the school laboratory, or in the open, instead of lecture and note taking, will be followed.

The full course includes two years' sessions with an interim winter reading and experimental course. The completion of the full course entitles students to certificates of competency.

Each year's work includes soil physics and chemistry, school gardening, plant propagation and botany, animal life, general nature study, farm arithmetic and book-keeping, farm mechanics (for men) and rural domestic science (for

women), and method of presentation of nature study and agriculture as school subjects in the elementary schools.

Not more than 32 students will be in any class where practical experimental work is carried on.

Already more than the full number the two schools are capable of accommodating have applied.

A competent staff of instructors has been appointed for these schools. Both open on July 14th and continue four weeks.

QUEBEC

SUMMER schools will be held at Macdonald College from 2nd August to 28th August, 1915, for nature study and courses in elementary agriculture, with supplementary courses in art and manual training. No fees are required. On being awarded a certificate for successful work each student will be allowed five cents a mile for travelling expenses and receive a bonus of \$15 out of funds provided by the

provincial government. All teachers who possess an elementary, model or academy diploma and are engaged in teaching in the province of Quebec are eligible. A nature study and elementary agriculture certificate will be awarded to those students who complete the course satisfactorily. The subjects included are: nature study, plant life, horticulture and gardening, animal life, manual training and art.

ONTARIO

SUMMER courses have been arranged for by the Provincial Department of Education with the Department of Agriculture, the Ontario College of Art, the University of Toronto and the Department of Militia and Defence, to start July 5th and end August 6th. The courses in physical culture which were held last year at London and Ottawa will not be repeated this year. The courses will be for:

With the Ontario Agricultural College, Guelph—Elementary agriculture and horticulture, Parts 1 and 2; intermediate certificates in agriculture, Parts 1 and 2; certificates in agriculture for teachers of household science and certificates in farm mechanics.

With the Ontario College of Art, Toronto—Elementary art, art supervisors, and art specialists.

With the University of Toronto—Elementary household science, Parts 1 and 2; elementary manual training; intermediate manual training; vocal music, commercial subjects, etc.

With the Department of Militia and Defence—Elementary physical culture, supervisors and specialists in physical culture.

Certificated teachers of different grades are eligible for the courses according to subjects. Applications were to be made by 8th June. Tuition is free to the agricultural course. Travelling expenses and the sum of \$20 are to be allowed to every teacher who satisfactorily completes a course leading to a certificate in agriculture.

Other summer short courses to be held at the Ontario Agricultural College were announced on page 447 of the May number of THE GAZETTE

MANITOBA

THE Summer School of Science and Handicrafts will be held in Winnipeg from July 6th to August 6th.

Courses will be given in the following:—

1. Elementary Agriculture, Nature Study and School Gardening.
2. Advanced Nature Study and School Gardening.
3. Elementary Bench and Forge Work.
4. Advanced Bench and Forge Work.
5. Elementary Light Wood Work and Wood Carving.
6. Raffia, Rattan and Clay Work.
7. Sewing.
8. Cooking.

Teachers who have received interim second-class professional certificates for this Province, or certificates acquired outside the Province, are required to take a course in the Summer School of Science, or, by special arrangement, in the Summer School of Handicrafts, as one of the conditions necessary to secure a

permanent certificate for the Province. The attention of such teachers is called to this provision, as in view of the present supply of qualified teachers it will be difficult to secure extensions of interim certificates, and therefore the necessary steps to secure permanent certificates should be taken promptly. Each student enrolled in the Summer School pays a fee of \$3.00 to cover the cost of material used. All other expenses over and above the amount of fees are paid by the Department of Education.

A short course in agriculture, prepared from the standpoint of the country clergyman, will be given at the Manitoba Agricultural College commencing August 2. In addition to the lecture course, which is being given by members of the college staff, there will be a conference for the discussion of the relationship between the country church and agriculture. Addresses will be delivered by social workers of national reputation.

SASKATCHEWAN

SUMMER courses for teachers will be held at the University of Saskatchewan, Saskatoon, and the Provincial Normal School, Regina, in agriculture, household science and music from July 14th to August 4th, 1915. There will also be a special course for teachers of science and inspectors of schools. Teachers completing a course satisfactorily will be allowed their return

fares. No fee is charged for agriculture. A charge of a dollar a day for board is made. Applications had to be in by June 30th and registration was required before July 14th. For household science one dollar must be deposited with the director, to be returned, minus the cost of any equipment destroyed, at the end of the course. For music a fee of \$5 is charged.

ALBERTA

SUMMER schools for teachers will be held at the University of Alberta, Edmonton, from July 5th to August 7th, 1915. Applications were required to be filed with the Department of Education on or before May 30th and registration was necessary on July 5th. Upwards of 400 applications were received, but only 350 could be accepted. Railway fares to and from Edmonton were allowed to those

teachers who satisfactorily completed the study of two subjects. A special course for teachers of science and agriculture in high schools was arranged to start July 15th and extend to the end of the regular course. The courses included all branches of agriculture, ranching, nature study, household science, manual training, woodwork and physical training.

BRITISH COLUMBIA

SUMMER courses for teachers will be held in Victoria High School from Tuesday, June 29th, to Friday, July 30th, 1915. The subjects of study will include: rural science and school gardening, art, vocal music and elocution, manual arts, manual training, household economics and English literature and French. Under the terms "rural science and school gardening" are included every branch of agriculture and nature study. Tuition is free and so is transportation to and

from Victoria. A per diem allowance of \$1 will also be made for living expenses providing attendance and work are satisfactory.

On June 23rd applications had been received from 220 teachers taking the first year rural science course and from 80 teachers for the second year work, making around 300 teachers gathering at Victoria this year for the study of agriculture. The total number of applications in all summer courses aggregate some 700 teachers.

The Page County (Iowa) schools had in five years been given a trend toward vocational training that had captured the imaginations of parents, children and teachers. I found in one of these schools a big boy writing laboriously on raspberry culture. Be it remembered that he was doing a lesson, not in horticulture, but in English—and he was doing it rather well.

"Why don't you write," I asked, "on some literary topic, like the poems I like best, or the paintings in the Louvre?" "Well," said he, "you see, I don't know anything about the Loov, and I don't read poetry very much; but I do know about raspberry culture. I am growing raspberries for the market." So he wrote about raspberries—just as Grant wrote about his campaign—in good, clear, terse English. It was a most excellent exercise in English and it was a really rural topic.

In mathematics these children had much better tasks to perform than to compute the number of revolutions the wheel of a cart would make in a journey from the earth to the moon, or to solve a problem in alternate alligation or in cube root. They made inventories of the farm property. They figured profits and losses on farm crops. They made tests of dairy cows and calculated profits and losses in individual cows. They had a little arithmetic book of their own, compiled by Miss Field (the teacher), and filled with strictly rural problems.—Herbert Quick, in "The Saturday Evening Post."

WHY SCHOOL GARDENS FAIL

NOVA SCOTIA

BY L. A. DEWOLFE, DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

SCHOOL gardens, I think, fail
(1) Because the teacher lacks enthusiasm and the power of leadership with the pupils.

(2) Because she is not well-balanced; and lacks persuasive powers and leadership with trustees and parents.

(3) Because teachers in various departments of the same school fail to co-operate.

(4) The teacher's ignorance of gardening causes the children to lose confidence in her.

(5) The school grounds are often unsuitable, either on account of condition or in size.

(6) Loafers on the school grounds after school hours often do damage. Making the school ground a thoroughfare also causes trouble.

(7) Too much is attempted.

(8) The frequent change of teachers.

(9) "Who will do the work" is a puzzling question. Frequently, the matter of ploughing is left to the voluntary efforts of some good-natured man instead of having the work done in a business-like way at the section's expense.

(10) Lack of care in summer vacation is, perhaps, the greatest drawback.

(11) Procrastination is fatal. Ploughing, ordering seeds, and making plans are often left until planting time. Hurriedly and poorly prepared ground will never result in a good garden.

QUEBEC

BY JEAN-CHARLES MAGNAN, OFFICIAL AGRICULTURIST, SAINT-CASIMIR, PORTNEUF, QUE.

THE importance and utility of the school garden are fairly well understood by the school teachers of our province; however, too many promising school gardens, which were well started, have been neglected and abandoned later on.

This is much to be regretted. What are the causes of such failures? In our opinion, the causes hampering the school garden movement are the following:—

A. *The object of the school garden is not sufficiently understood.*

The teacher should know clearly the "why" and the "how" of the school garden if he or she wants to

achieve success. All teachers who desire to establish a school garden should first write to the Department of Agriculture for guidance and advice. The teacher must keep informed, if he wants this work to be really profitable to the pupils. The Department of Agriculture has for distribution a number of pamphlets and circulars on the establishment and care of the school garden.

B. *There is a lack of understanding and co-operation between school trustees and teachers.*

It is a fact that the teacher works alone. The school trustees do not understand that they can do a great

deal to help her. However, it is absolutely necessary that there should be good understanding between the two, otherwise the garden will not be successful. This is a weak point to which my attention has been particularly called this year during my visit to the school gardens. The school board should not forget that it has been established specially to supervise the teaching of the children of the parish, and to make sure that this teaching is given in accordance with the program. Therefore, the teacher who desires to establish and maintain a school garden in her school should be supported and helped by the school board.

C. Land poorly prepared.

In some schools the garden is abandoned after the first year; this is particularly the case of a good many gardens which were not well enough prepared. It is impossible to secure products of good quality on land that has not been sufficiently worked and that has not received a sufficient quantity of manure. The land should be ploughed and spaded; it should receive an application of farmyard manure and wood ashes. Chemical fertilizers may also be applied as a supplement to farmyard manure.

D. Some school gardens are too large.

How many teachers have lost heart because they undertook too much at first. I have seen school gardens 90 by 50 feet for schools which had only about fifteen pupils. The following year, the majority of these schools had given up their garden. When I would ask the reason for this, the teachers would invariably answer "Too much work." These teachers had made a mistake from the start. Let us always remember this principle:—The school garden must be proportionate to the school, to the number of the pupils and to the spare time of the teacher.

E. The teachers change schools too often.

Each year a large number of teachers leave school to work for another school board. In such cases too often the school garden is abandoned, as a new teacher is not always up in agricultural school work or does not care; this is to be regretted, and school trustees would help the movement very much by employing only qualified school teachers who would remain a long time in their school. From an educational point of view, the children would be the first to benefit by this move.

SASKATCHEWAN

BY A. KENNEDY, M.A., INSPECTOR OF SCHOOLS, WEYBURN.

DURING 1914 there was a marked increase in the number of school districts undertaking School Garden work. Much of this work has demonstrated its educational value and has been duly accorded its share of praise. Unfortunately, however, the results have not always been successful; in fact, teachers and pupils have had bitter disappointments and many discouragements. While some have had to admit defeat, one hesitates

to pronounce their work a failure, for often out of apparent defeat comes glorious victory; in many cases the work of 1915 will determine whether the experience was a success. There are so many opportunities for direct interest and inspiration, as well as for indirect influence, through the various subjects of the course of study, that one has difficulty in deciding when failure may be admitted.

Among the causes for disappointment and discouragement, if not failure, are the undertaking of too much work, the lack of fencing, the difficulty of getting water, destruction of the plants by gophers, frost, etc., neglect during vacation and the changing of teachers. Some of these difficulties are peculiar to the prairie and Western conditions. They are, however, also difficulties with which the farmer has to contend so that the boy, the future-citizen, may have an opportunity of experimenting on a smaller scale.

Many enthusiastic teachers make the mistake of undertaking a large garden, or attempting to cover a wide selection of plants, and fail to estimate accurately, the amount of work required in the later cultivation in the limited time at the disposal of the pupils. Prairie children, who live three or four miles from school, and often have to walk to and from school, cannot be expected to spend any considerable time in garden work outside of school hours. The result is too often a crop of vegetables allowed to go to seed, with weeds producing an even larger crop of seed. The educational value of such an experience is negative; thrift should be one of the products of garden work.

Prairie farms are seldom fenced and the school grounds also suffer similarly. While cattle are not permitted to run at large, school gardens have suffered destruction from chance visits of stray animals. There are other ways in which a fence would often afford protection to the plots on which the children have expended patient care.

The question of supplying the children with suitable drinking-water has given a great deal of trouble and has not yet been satisfactorily solved. It can be readily appreciated then, that the problem of providing sufficient water for the plants, offers no less difficulty. Again, this is a farmer's problem

which presents itself for solution at several stages in the crop season. It is only necessary to note the attention devoted to questions of irrigation and dry-farming to understand something of the magnitude of this problem. Of course a partial solution is often found in arranging for a cistern, dug-outs, etc., but even then the difficulty is not wholly overcome.

On the prairie the gopher is ever with us, despite energetic attempts to eradicate the pest. Many and many a time I have been told by teacher or pupil of the destruction of the garden by the visits of these creatures. During July and August hailstorms by day, and frost by night cause many disappointments, and against these there is little defence. However, the young citizen receives a lesson that may serve him in good stead in later life.

The vacation problem is not usually so acute in the rural districts as many of the schools decide upon the short vacation in summer, with the longer vacation in winter. The urban districts can usually make arrangements to have the garden cared for during the vacation.

Probably the factor that contributes most to the failure of school garden work is the changing of teachers. Unfortunately, there are three conditions, perhaps, peculiar to the prairie country, which account for the changing of the teachers so frequently; the period of operation of many of the rural districts does not greatly exceed 140 days per year; boards of trustees do not give sufficient attention to training and experience in deciding the amount of salary to be paid, many teachers for whom Provisional certificates have to be secured being offered the same salary as teachers with Second Class certificates; there is often a lack of encouragement and support as between trustees and young teachers, creating an atmosphere that does not tend to make for permanency in the position. The new teacher often

misses excellent opportunities of establishing a permanency by neglecting to complete the work undertaken and conducted up to the vacation.

The increase in the number of class-rooms having flowering plants and bulbs is most gratifying; this

phase of school garden work might well be extended as there are fewer difficulties to be met, and the transformation of the class-room amply repays all the time and trouble given to the care and cultivation of the plants.

BRITISH COLUMBIA

BY J. W. GIBSON, M.A., DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

MOST people judge of the success of school gardens by the volume and excellence of the crops produced. Some teachers and school inspectors and most school trustees regard success from this standpoint. In so far as these material returns are the result of painstaking care and intelligent application on the part of the pupils just so far may we look upon them as evidences of success and no farther. In former numbers of THE GAZETTE this question of the truly successful garden has been fully discussed. It is quite possible to have a garden at school which would be a great failure from the standpoint of the average market gardener but a great success from the standpoint of an earnest teacher, whose pupils have had opened up to them through their work and study in the school garden new and wholesome interests, which are destined to lead them out into a larger life—a life full of thoughtful, purposeful activity, in which they will come to know and appreciate the beauties as well as the utilities about them.

On the teacher, more than on anyone or anything else, depends the success or failure of the school garden. The teacher may fail, through lack of interest or through lack of a real understanding of the meaning of the work. More often, however, the teacher's failure is due to inadequate preparation for the work, and consequently to mistakes,

bad management and bad methods of conducting the work. Experience in gardening is, of course, valuable, but the management of classes in the garden and the conducting of profitable lessons in both garden and class-room are things that an expert gardener might utterly fail in. How to make the most of the school garden, not for the growing of carrots and cabbages, as some might think, but as a part of the equipment of the school for the purpose of training and educating boys and girls, is something that most teachers must yet learn.

INFLUENCE ON SCHOOL WORK

Many teachers, not all, complain of pressure of work and the preparing of pupils for examinations and look upon the time spent in the school garden as so much time and energy expended which might have been used in "getting up" the work in the other school subjects. All such teachers naturally regard school gardening as so much "extra" work. No one who knows will say that school gardening does not mean extra work. Most teachers, however, will tell you that their pupils, as well as themselves, have found the garden work both interesting and recreative. The great problem then must be concerned with turning school garden interest and daily garden experience to account in the teaching of the formal subjects of the curriculum—arithmetic, reading,

writing, composition, drawing, etc. Some teachers are finding this quite possible, and are no longer complaining of the overcrowded curriculum.

In the next place school gardening will meet with variable success or failure so long as teachers change from school to school as frequently as at present. This great disadvantage will be minimized, of course, when all teachers are specially trained in the work. With the establishing of the teacher's residence and the increase of the percentage of male teachers in our schools something approaching permanency will result.

Lack of sympathy and co-operation on the part of trustees and rate-payers has in some cases prevented the establishing of school gardens, or has led to the abandoning of them. This opposition has almost passed away and we are glad to note that instead we now not infrequently find trustees and parents urging that school gardening and other agricultural studies be inaugurated in the schools of their districts. Only those people who do not rightly understand the meaning and purpose of the school garden will be found opposing it.

Some attempts at school gardening have failed for the simple reason that the conditions for gardening were unfavourable in the extreme. At the same time, people have been led to wonder at the excellent gardens that have been established

where such forbidding things as ash heaps, tin cans and burdocks held sway. Indeed, not the least value arising from school gardening is the experience gained in cultivating and bringing under control most refractory garden sites. Nevertheless, teachers and school boards would be wise in always selecting a piece of land for school gardening which in season can be made productive. In some cases, the labour and expense entailed in making and maintaining a garden have been very great, but, speaking generally, expense is not a frequent cause of failure in school gardening.

Finally, the long summer vacation offers some difficulty. A garden neglected throughout the months of July and August is a great disappointment. Such failure, however, is merely an evidence of bad management and of carelessness on the part of everybody concerned—teachers, pupils and trustees. Neglect of the school garden and school ground during the summer usually results from lack of interest and failure on the part of teachers and trustees to appreciate the real value of the work. The solution of the difficulty cannot be given in a few words. It has been more fully discussed in a former number of THE GAZETTE, but when modern educationists have finally decided as to what agencies are most worth while in the education of our youth our schools will not remain closed all summer and gardening will have an important place in the activities of young people during these summer months.

The boys and girls of to-day are the fathers and mothers of to-morrow, and upon them depend the future civic life, the prosperity, and the industrial standing of the state. Any educational regulation, therefore, the natural tendency of which is to draw the boys and girls, bred and born to the farm, permanently away from it, or the natural tendency of which is to draw the boys and girls, bred and born to other industrial pursuits, permanently away from them, instead of leaving them to their industrial pursuits, instead of leaving them to their natural inclinations influenced by physical conditions surrounding them, "to develop, dwell, and enter into the industrial pursuits of the neighbourhood or locality in which they were born," is radically wrong, not in harmony with the best interests of the people, and some way should be devised to remedy it.—*Report Vermont Educational Commission.*

THE SCHOOL GARDEN

ITS PURPOSE—ITS CARE DURING VACATION

BY R. P. STEEVES, DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION FOR NEW BRUNSWICK

THE school garden represents in a large degree the attitude of the school toward outdoor instruction and community life problems. It is also the visible expression of the estimation of the people of the district of the value of education to increase productive industry. It stands for that side of education that dignifies manual labour under the direction of trained intelligence and a knowledge of scientific principles. It indicates that the people realize that there is a clear relationship between the instruction the schools afford and the improvement and development of local conditions, between what the children do at school and what they do in after life for the social and economic prosperity of the community.

A LOCAL INDUSTRY

In a consideration of this question we cannot afford to eliminate the fact that the school is largely a local industry, that it should seek to make life in the district where it is situated more prosperous and enjoyable. The school is a means toward an end. It exists for the near at hand first; it stands for better citizenship here and now. The school costs money, most of which is supplied locally. It is reasonable therefore to expect that it should not only furnish the children with general instruction and training, but that it should deal with agencies that directly help to develop the community, that are a part of its life and vigour, that deal with the natural resources, through which the pursuits of the people are made possible, which they must engage in, in order to live there.

I make a direct appeal to the rate-payers of every district in annual school meeting assembled. While together look over your school property. Are the grounds neat, tidy and attractive. Are they exerting an influence for good on the young people attending the school? Do they indicate thrift? Do they show that the people recognize substantial value in their local educational institution? Is that institution inculcating in the children a love of the home land, a sympathy with its pursuits, a purpose to use the knowledge gained to improve and develop local conditions, to increase its prosperity?

The school property is the only possession in which every resident of the district has a part. If it be of value every resident therefore should have an interest in its upkeep. In concrete form its appearance and condition voice public opinion. The school premises should be the pride of the community, a place where residents will be sure to take visiting friends. Where this is the case, there will be no two opinions about school ground conditions, their influence in the neighbourhood, or the people's appreciation of the sort of education that makes the inhabitants prosperous, contented and happy.

The school ground therefore should be ample in size, it should be neatly fenced, it should afford opportunity to the children for enjoyable recreation and exercise, it should include a cultivated area where physical and mental efforts combine for the development of the child for better local citizenship. We call this cultivated area a school garden. It is a

means to an end; it is a link between the period of life preparation and the activities of mature citizenship, between the school and the home.

This school garden is a laboratory or workshop, a piece of apparatus for practical education, revealing the value of the school to the life of the district. It will be found an aid not only in interesting children in practical pursuits, but also in cultivating in them an appreciation for the beautiful in nature and the power and desire to express such taste by ornamenting their homes and their surroundings.

SCHOOL GARDENS AN ATTRACTION

School grounds containing a well kept school garden will always be found more attractive, and, in all cases, other things being equal, such schools give better value to the community, a better education to the children who have greater interest in their work.

That during the summer vacation the school property should have a dilapidated, forsaken appearance is no credit to any community. It tends to make the young people lose interest in their surroundings. At a time when all nature is looking best, neglect and disorder at the spot that stands for local intelligence cannot but give a downward incline to thought and action among the younger portion of the population.

The idea is, therefore, that the school grounds should be a point around which the thought and effort of all residents should centre, and that here during the school vacation, from time to time on Saturday afternoons, or other convenient time, for social enjoyment, for community improvement the people should assemble with the pupils of the school. On the principle that "Many hands make light work," a short time would suffice to put the garden and the entire school ground in good shape, mow the lawn, clean the walks and destroy weeds about

the fence. The remainder of the time would be given to games and contests and social intercourse.

In many of our country sections to their great advantage Women's Institutes flourish. I feel sure their members in their districts would heartily co-operate in efforts of this character. Among the many parts the evening repast would be not the least entertaining. The ladies would gladly assume charge of such work. To assemble at four o'clock, spend the first hour and a half in labour, have the evening meal and spend remaining time until eight o'clock in games, might be the programme. Children, young people and heads of families all could participate with individual pleasure and profit.

Such a course of action would cause that the school garden need not be handed over to a paid caretaker, it would be a community investment for instruction and general improvement and pleasure. Public sentiment would be behind it. No one would be the poorer, in fact life in such a place would be worth more.

A PIECE OF APPARATUS

As the garden is a piece of apparatus for exemplifying and giving training every pupil should be a participant. Every effort made should have its purpose, should afford instruction. If the work be a task exacted of pupils, great difficulties will be encountered. If through child interest in life, in nature and doing, their interest is enlisted and the impelling power to act is from within each life, the effort is no longer a task, it is a pleasure. This is the real secret of success in school as in every phase of life. To accomplish the purpose of the work of preparation of the soil, of planting, of protecting, of observing varying conditions of cultivation, in a word, of winning success, the pleasure of vacation is enhanced by frequent visits at least weekly, to the school

garden, and giving the attention needed and recording observations. These records are to be submitted to the teacher at the beginning of the term in August and, together with the plot's condition, made the basis of a merit mark in Nature Study. This should be made a feature of school standing equal to that assigned to any other school subject. If 100 is a full mark for language, then 100 should be the full mark for Nature and Agriculture and at least one-half of this should be set for the practical work. If any other system of estimating values is used, then this same principle should govern.

MAGNIFY COMMUNITY LIFE

The more the pupil can be encouraged to keep in personal contact during vacation with his school garden plot, the more the people, parents, ratepayers and young people, can be induced to co-operate, the stronger the influence that will be exerted on the youth to magnify community life. People whose community life has been happy, bright and attractive in youth, and who have learned the secret of getting intellectual and moral values through their physical and social activities, will never in maturity lose the attachment to that locality or interest in its pursuits.

This is a direct call to teachers and pupils, to school trustees, to

ratepayers in school meeting assembled, to unite to make the school a paying investment for the community. The time needed will bring its own reward. Four hours spent out of every two weeks during July and August, as indicated in the foregoing, will pay the best interest in uplifting life in rural communities.

In these days when patriotic attachment to the Empire is being tested, it must be remembered that loyalty to our home community is the best guarantee of the broader national feeling. Moreover, to actively cultivate local loyalty will be found the best way to inoculate in the youth of our land that deep devotion to the principles of government and freedom for which the British Empire stands pre-eminent. Through the love we bear our homes and district, and the efforts we make to enhance and dignify their importance, we establish and fortify ourselves as patriotic citizens. By doing, we create appreciation and compel recognition.

Help yourselves, improve your homes, enrich true living by uniting to strengthen and benefit the school of your community.

NOTE:—The foregoing forms the text of a message sent to teachers and pupils, school trustees and ratepayers by the Director of Elementary Agricultural Education for New Brunswick, with the request that portions of it be read at the annual school meeting.—EDITOR.

Mr. S. B. Sinclair, of Philadelphia, speaking at a meeting of the Ontario Education Association at Toronto, stated that every school in Philadelphia has a school garden. In Dayton, Ohio, 1,700 children were given seeds to plant, and worked in 420 back-yard gardens.

"The most potent remedy for social and economic unrest is scientific, co-operative, intensive farming," said the speaker, "and the most natural and effective preparation for intensive agriculture is the school garden, including the schoolground demonstration garden, the city back-yard home garden, the boy farmer club for placing city boys on the farm during summer vacation, and other agricultural activities administered by school authorities and correlated with school work."

PHENOLOGICAL OBSERVATIONS BY SCHOOLS

BY A. H. MACKAY, B.A., SUPERINTENDENT OF EDUCATION FOR NOVA SCOTIA

FOR over twenty years the rural schools of Nova Scotia have been accumulating valuable phenological data for the future scientific students of climate, which serves the teacher as a stimulus to Nature Study, and stimulates pupils to be observers and collectors on their way to and from school, generally with the effect of making an otherwise monotonous journey an exciting excursion.

The schedules of observations are sent in by the teachers to the inspectors semi-annually with their returns. After annotation by the inspectors who are careful to see that each locality is clearly indicated, they are transmitted to the Education office, where the schedules are carefully bound in annual volumes and presented to the Provincial Science Library for safe keeping and reference.

This system solved a phenological problem which the Royal Society vainly endeavoured to deal with—the regular collection of phenological data. Scientific men in different parts of the Dominion promised to observe, note and report a series of phenological facts. Only a fraction persevered during the year. And even these reported phenomena as occurring too often in hebdomadal cycles corresponding to their weekly excursions.

In the rural school, the eyes of numerous children sweeping often over a radius of two miles daily in search of the *first* appearance were infinitely more prompt and accurate. As the specimens are taken to the school to undergo the scrutiny of the teacher before the observation is entered in the schedule, there is no chance of a mistake where there is a competent teacher. The schedules have been submitted to local spec-

ialists, whose comments and criticisms are published in the *Journal of Education* which is the official bulletin of the Education Department sent to each school.

Some general summaries of these annual observations have been published for many years by me as secretary of the Botanical Club of Canada, in the Transactions of the Royal Society of Canada, and of the Nova Scotian Institute of Science. The system has been introduced sporadically into the other provinces of Canada, in some schools of the United States, and more particularly of Denmark.

English phenological meteorologists adopted our method of noting dates by the use of the day of the year, which proves so very convenient for the calculation of average dates (phenochrons—see the New Standard Dictionary). Dr. Ihne of Darmstadt still uses the clumsy notation of “day and month”. The “24th of May” is “144” with us and “24V” with the German phenologist.

Since the dissolution of the Botanical Club of Canada, the publication of these phenological observations has been taken up by the Meteorological Service of Canada. In the Transactions of the Nova Scotian Institute of Science, we still continue to publish the Provincial and District phenochrons.

Teachers find the schedules to be a great help in interesting their pupils in one line of their Nature Study work. The pupils are stimulated to observe by what is more a process of enlivening play than a formal study. And we are accumulating more phenological data in the province of Nova Scotia than is done in any other part of the world, and without any cost.

PART IV

Special Contributions, Reports of Agricultural Organizations, Notes and Publications

COUNTY EXTENSION WORK IN SCOTLAND

THE following extract is taken from the third annual report of the Board of Agriculture for Scotland for the year ended December, 1914:—

The extension work of the three agricultural colleges, Edinburgh and East of Scotland College, North of Scotland College, and West of Scotland College was continued in a satisfactory manner in 1914, and the increases shown in the number of courses and lectures given, and in the attendances thereat, indicate a growing interest on the part of those whom they are intended to benefit. Instruction and advice was given by the organizers through the following agencies:—

- (a) Systematic classes, held at rural centres, in agriculture, horticulture, poultry-keeping, dairying, beekeeping, cooking, and rural domestic economy.
- (b) Courses of lectures or single lectures in the above subjects, and also in forestry, veterinary hygiene, and school gardening.
- (c) Conduct of field experiments and demonstrations, supervision of experimental plots, and preparation of reports on the results.
- (d) Visiting and advising small holders and farmers on agricultural matters, and making known the provisions of the Board's live stock schemes.
- (e) Acting as adjudicators in the competitions promoted by the Board for the best-managed small holdings and for the best crop of potatoes.

The staff of instructors numbered 58. The following statement gives an indication of the nature and volume of the work transacted by them in the course of the year:—

SYSTEMATIC COURSES

Number of centres.....	291
Number of meetings.....	3,327
Number of attendances.....	56,175

LECTURES AND DEMONSTRATIONS

Number of centres.....	779
Number of meetings.....	1,978
Number of attendances.....	62,500
Number of experiments.....	1,353
Visits to crofts and farms, to give advice.....	15,144

Valuable assistance was also rendered by the staffs of the agricultural colleges in connection with the following, amongst other schemes promoted by the Board:—

School Gardening.—An increasing number of teachers took advantage of the Board's scheme for encouraging the establishment of school gardens in the poorer districts of the North and West, and the Board have reason to hope that the operation of this scheme will result in a greater appreciation on the part of crofters and small holders of the benefits to be derived from the pursuit of gardening at their homes. In 1914, 350 schools were supplied with seeds and plants on the following conditions:—

- (1) That the older pupils in the school get practical instruction in gardening from the plots in the teacher's garden or as elsewhere provided, and be encouraged to apply such instruction at their own homes, where possible;
- (2) That the condition of the plots, etc., and the pupil's progress in gardening be, if practicable, subject to such tests or reports as the Education Department may require under Article 21 (b) of the Code. In any case the attention of the inspector

ought to be called to any effort, however simple, under this scheme of the Board. A very short report direct to this Board from the teacher himself at the end of the season will be welcomed. Special reference should be made to the effect of the instruction on the home circumstances of the pupils.

Advice and assistance in regard to the laying out and management of the gardens was also given to the teachers by the instructors of the colleges.

Potato Spraying.—The demonstrations organized by the colleges in previous years, at the request of the Board, to encourage the adoption of spraying in the Western Highlands and Islands were repeated in 1914, senior students of the Aberdeen and Glasgow Colleges being employed as demonstrators in conjunction with the college instructors for the districts. As in the previous season about 600 plots in all were sprayed. The reports received show that these demonstrations aroused much interest in the districts in which they were given, and appear to be serving their purpose in bringing home to crofters the advantages of spraying as a preventive of disease.

PRIZES FOR BEST-MANAGED SMALL HOLDINGS AND BEST CROPS OF POTATOES

Competitions for the best-managed small holdings were initiated by the Board in 1912, and in that year were confined to those areas in the congested districts in which crofters' shows were held. In 1913 the scheme was extended to include small holdings outside the crofting areas, and for this purpose separate competitions were arranged in the three agricultural college areas. For the purpose of this competition, the holdings in each district were divided into three classes as follows:—

- Class 1.—Holdings cultivated entirely by hand or spade labour.
- Class 2.—Holdings up to 15 acres (exclusive of outrun) cultivated by horse and other labour.
- Class 3.—Holdings above 15 acres (exclusive of outrun) cultivated by horse and other labour.

Several prizes were offered in each class for every district, and during 1914 the holders of first-prize awards in any pre-

vious year's competition were precluded from competing.

The reports of the judges add testimony to the educative value of these competitions. There is undoubted evidence that in a large number of cases progress has been made in the direction of better housing, improved methods of cultivation, freedom of the ground from weeds, and, in general, towards a sounder economic management of the holdings. While it may be admitted that these improvements have been effected by special efforts on the part of the small holders to obtain prizes in the competitions, it is to be hoped that the improved conditions which now obtain may be of a permanent nature. What is of greater encouragement still is the fact that even where the marks apportioned are lowest, a desire is being shown for more information from the college instructors and others as to the best lines on which to effect further improvement.

The entries received for the competition for the best crops of potatoes show an encouraging increase.

The number of show committees taking advantage of the scheme during 1913 was 27 with a total number of 276 competitors, while in 1914 entries were received from 44 show committees and a total number of 473 entered for the competition.

The competitors were again divided into two classes. In the first the crop was entirely cultivated by hand or spade labour with a minimum area of one quarter of an acre under potatoes, and in the second class horse and other labour could be employed, with a minimum area of half an acre. Competitors on the western seaboard and in the Western Isles were required to spray their potatoes to prevent disease.

The judges' reports are very hopeful and encouraging as to the effect this scheme is having on the intelligent cultivation of the potato crop. The outstanding feature in their reports is the educative value of the demonstrated efficiency of spraying, during a season like that of 1914, in preventing disease and in increasing the crop. In areas where spraying was not compulsory much loss was caused by disease.

Further stress is laid on the evidence that not only is a frequent change of seed essential, but also in almost every district a change of variety is imperative.

The crop results in the best districts are of a high standard and so uniform that difficulty was experienced in placing them in order of merit. In many cases a very intelligent use has been made of artificial manures in supplementing the farmyard manure made on the croft, thus producing

potatoes of a higher quality. The practice is not however, universal, and a more extended use of artificial manures is recommended.

One of the principal objects of the scheme however, is being rapidly attained, namely, that of bringing the college instructors more closely into touch with the crofters and increasing the useful sphere of work of these officers.

THE UNITED FARMERS OF ALBERTA

BY P. P. WOODBRIDGE, SECRETARY-TREASURER, CALGARY

THE combination of the seven hundred or more local unions, as they are called, into the "United Farmers of Alberta" was the result of a representative conference of the leading men connected with the various farmers' associations which had existed in the province of Alberta prior to January, 1909. At that conference it was decided that better work could be done by organizing a provincial association, with a provincial central office and board of directors, with which any farmers' association could be affiliated on payment of a nominal per capita affiliation fee of fifty cents for each member of the local branch. As suggested above, the number of these local unions or societies now affiliated with the provincial organization is over 700. Each local union retains complete freedom and the control of its own actions. It also elects its own officers, who attend to all the local business.

CONSTITUTION AND OBJECTS

The local unions of the United Farmers of Alberta bear no relationship to farmers' institutes and agricultural societies, all of which come almost directly under the supervision and influence of the provincial government; whereas the local unions affiliated with the provincial association appoint delegates in proportion to their membership, who attend the annual convention held in January of each year, when the report of the officers for the preceding year and resolutions suggested by the affiliated societies are received and discussed. The officers for the succeeding year are also elected at this annual meeting. It may be pointed out, however, that, generally speaking, farmers' institutes and agricultural societies are more progressive, and do better work, where the unions of the United Farmers of Alberta are active, as the work of the local union of the United Farmers of Alberta is largely of a nature which educates the farmer to take a greater

interest in these other organizations; in fact, the membership of the one is in many cases the membership of the other. It might also be pointed out that while there is no definite arrangement at present, the provincial Department of Agriculture recognizes the value of the local organizations of the United Farmers of Alberta, and is prepared, on request, to supply speakers on agricultural subjects, from its demonstration farms and agricultural colleges, to any of these affiliated local unions.

Each local society affiliated with the provincial association adopts the provincial constitution, but has power to adopt such bylaws for its own guidance as it sees fit, provided they are not contrary to the constitution itself. The objects and purpose of the association as set forth in the constitution are as follows:—

(a) To further the interests of farmers and ranchers in all branches of agriculture; to promote the best methods of farm business; to seek to enlarge and increase our markets; to gather market information; to obtain by united efforts profitable and equitable prices for farm produce, and to secure the best and cheapest transportation.

(b) To study and teach the principles of co-operation and to promote the establishment of co-operative societies.

(c) To watch, influence and promote legislation relative to the objects specified in the preceding sub-sections (a) and (b), and to advance any other matter affecting the farmers' business, and to take any legitimate action necessary for this purpose.

(d) To promote social intercourse and the study of economic and social questions bearing on our interests as farmers.

(e) To settle disputes between members without recourse to law whenever possible.

(f) To take into consideration any member's case of grievance, hardship or litigation, and to defend our members as far as it may be possible and just.

MEMBERSHIP AND OPERATION

The local unions of the United Farmers of Alberta vary in membership from 10 to 200 or more, and the territory which they cover varies in proportion. As a general rule, however, a radius of from six to eight miles around the schoolhouse in which the meetings are held is about the extent of the territory covered by any individual union. There are cases where for the purpose of a more economic handling of the business in which these unions are engaged, particularly trading or bulk purchasing, this limit has been considerably extended. The tendency to-day, however, is largely in favour of the smaller territory, for the purpose of securing better attendance at the meetings. In place of a large union of 200 members or more, we find the district association, which is a voluntary combination of two or more local societies under a district board consisting of representatives of each society in the combination.

The objects as given in the foregoing will clearly show that the ground which can be covered by these organizations is very great. Few at present have reached anything like their full development. The advance which has been made in many directions within the last two years, however, has been marked. The Cowley local union, for instance, is now engaged in so much work of one kind or another that it has been found not only possible but profitable to issue a special monthly bulletin, which is sent to each member of the local union, and contains a full account of what has been done in the past month as well as the programme for the succeeding month. This union holds cattle and horse sales twice a year. These are recognized as an important feature of local work, not only inside the association but also outside. Some \$13,000 worth of business was done through this sales department alone last year.

Throughout the winter the union meets twice a month. A strong agricultural programme is arranged and experts on various agricultural subjects are secured. Addresses by them are followed by discussion and questions. The members also engage extensively in purchasing their supplies, such as binder twine, fence posts,

lumber and other farm necessities. Nearly \$16,000 worth of business was done in this way in the year 1914.

The records also show that, while none of the local unions are exercising to the full the powers they possess, most of them are being put into practice, the districts for the most part carrying out those objects which seem most suited to the kind of farming being practised. Thus we find in the mixed farming districts of Alberta associations engaged extensively in the shipping of live stock on a co-operative plan. One such district shipped fourteen hundred head of hogs in one day, on which it was estimated an average gain of a dollar per head was made. In the grain growing districts will be found some of these associations which have established seed-growing centres for the purpose of securing high grade seed for the benefit of their members, and thereby raising the standard and quality of grain throughout the district. In some places efforts are being made to standardize the breeds and improve the quality of live stock in the same way. In a number of places this spring the collective credit of the members of the union was used for the purpose of securing from the local banks sufficient money to enable needy members of the association to purchase seed grain. Thus, in a small way, is put into effect the principle of community security for increased agricultural credit. One also finds, by no means infrequently, associations operating successful beef rings and egg circles.

WOMEN'S AUXILIARY ASSOCIATION

The association provides for farm women to become members, but for the most part the custom has been for the women to organize as auxiliaries to the local associations. This phase of the movement has so far advanced that at the annual convention of the Women's Association last January, the women also organized as a provincial unit, electing their own executive and calling themselves "The Women's Auxiliary to the United Farmers of Alberta." Each of the local auxiliaries has full privileges in the men's association, and takes an active part, particularly in egg circles and similar work. In addition they take up matters more intimately connected with the home life, and improved social conditions, work which is badly needed in many parts of the prairie provinces.

CO-OPERATION IN SASKATCHEWAN

THE first annual report of the Co-operative Organization Branch of the Saskatchewan Department of Agriculture is of an instructive nature. It outlines the work of the branch from its inception in September, 1913, to the close of the year 1914, and in doing so shows in a marked manner the progress the co-operative movement is making among the agricultural and other communities in the province. Owing to the success achieved by the Saskatchewan Co-operative Elevator Company, the government resolved to do all that could be done to extend the movement and consequently created the Co-operative Organization Branch in September, 1913. Under The Agricultural Co-operative Association Act passed at the meeting of the legislature in the same year, five or more farmers can organize, and, on payment of a fee of \$4.50, can become incorporated for purposes of production, marketing and purchasing on co-operative principles. The act, which is designed for operation under the jurisdiction of the Co-operative Organization Branch, also provides for the appointment of a registrar, whose duty is to prepare a set of standard by-laws to govern every association coming under its provisions.

The first association to register under the Act was the Juniata Co-operative Association, the objects of which were set forth as to produce, purchase and sell live stock, farm products and supplies. At the date of registration there were eight shareholders, the authorized capital being placed at \$10,000, divided into 400 shares of \$25 each. Other associations were organized in quick succession until at the end of last year 113 had been registered.

At the time the report went to press, 102 associations with a membership of 2,850 had sent in returns. Their total paid-up capital was \$13,494.20 and their assets \$37,337.53, while their total liabilities amounted to only \$29,717.13, showing a clear balance to the good on the year's transactions of \$7,620.40. The average amount of authorized capital is \$6,843.13 and the par value of the shares is \$23. The total value of the farm supplies handled was \$239,320.42 and the value of the live stock sold was \$42,034.22. The variety of goods in which there was dealing was very wide, including binder twine, lubricating oils and gasoline, car-loads of fruit, flour, feed, wood, coal, etc. A typical purchasing organization is the Davidson Co-operative

Association. With an authorized capital of \$5,000 in 500 shares of \$10 each and only \$335 paid up, this association between April 14th, the date of its formation, and December 31st, handled 27 cars of coal, 6 of cordwood, 6 of lumber, 1 each of fence wire, fence posts, apples and potatoes. The savings by co-operation is indicated by the fact that coal was sold at \$1.82 per ton less than prices previously charged and shingles at \$1 per thousand less. In every article dealt with there were similar savings.

In live-stock marketing the advantages of co-operation proved equally as pronounced as in purchasing. Car-loads of stock are made up by the shareholders and forwarded to the larger market centres, where competitive bidding is assured. By this method expenses are curtailed, sales are more certain, consumer and producer are brought in closer communion, the small producer obtains the same price as the larger, and members are benefitted by the friendly rivalry that is aroused. An illustrative instance is found in the experience of the Hanley Farmers' Stock Shipping Association, which, being the first organized with a capital of \$500, divided into 250 shares at \$2 each, and only a paid-up capital of \$42, shipped during the last nine months of the year 15 car-loads of stock to Winnipeg with a saving in transportation and a profit in price.

The report gives valuable suggestions regarding the future, deals with the successful grading and marketing of wool, and, under the heading of "Other Co-operative Enterprises," tells what has been done with creameries. The first co-operative creameries started in Saskatchewan, then a territory, were three established in 1896, when Dr. James W. Robertson was Dominion Dairy Commissioner. Progress was not rapid and in 1905, when the province was granted autonomy, the number had only been increased to six. Following the establishment of the Provincial Dairy Branch the succeeding year there was considerable development. At the end of 1914, thirteen creameries were in operation under the direct supervision and direction of the Provincial Dairy Commissioner, who conducts all transactions.

Co-operative elevators and hail insurance are other methods which are prosperously carried on under the Co-operative Organization Branch.

QUEBEC HOMEMAKERS' CLUBS

The second annual convention of Quebec Homemakers' Clubs was held at Macdonald College on June 15th and 16th. These organizations correspond in purpose and work with Women's Institutes in several of the other provinces. They differ, however, in their organizations, inasmuch as they were formed by the women themselves unassisted by the government. These clubs are confined to the English-speaking counties. The first in the province was formed at Dunham in January, 1911, and there are now thirty active clubs in the province. The constitution provides for county organizations and branch clubs. In three counties, Missisquoi, Pontiac and Compton, county executives have been organized. The other counties having clubs are Shefford, Sherbrooke, Chateauguay, Huntingdon, Ottawa, Wolfe, Stanstead and Argenteuil.

Macdonald College has, from the beginning, taken an active interest in this work and, with one exception, a member of the staff was present to aid in the organization of each club. An officer of the College, Miss Frederica Campbell, whose services are provided for under THE AGRICULTURAL INSTRUCTION ACT, is the club demonstrator. Miss Katharine A Fisher, head of the School of Household Science, supervises the work.

At the convention there were forty-one delegates present, representing twenty-one clubs. Macdonald College provided board, lodging and other entertainment to the delegates during the two days of the convention. In addition to papers on the educational needs of farm women, medical inspection of schools, the rural school and other topics, an address by Principal Harrison of Macdonald College, and musical numbers, reports were read from the various branch clubs.

The membership of the clubs runs from about twenty-five to fifty, and has reached six hundred and thirty-three in the province. Meetings were held by all of them throughout the fall, winter and spring months, to study and discuss

"The most scientific way of conducting home work in order to economize, strengthen and preserve the health of the family; to discuss the best expenditure of money in order to secure the highest conditions of home life; to provide better financial, social and intellectual advantages

for farm boys and girls and yet keep them on the farm; to carry on any line of work which has for its object the welfare of home or community life."

The number of lectures and demonstrations given by the demonstrator was fourteen at club meetings and fourteen during the January short courses. Seven additional lectures and demonstrations were given by other members of the household science staff of Macdonald College, besides two lectures and demonstrations by members of the staff of the school of agriculture.

In addition, a large amount of patriotic and relief work was carried on. One club (Cowansville) provided the community with a series of high-class concerts, by which they raised \$370, which was used for patriotic and relief work. Other clubs raised corresponding amounts in other ways and practically all the clubs provided a large amount of clothing and other comforts for the soldiers and people in distress. Other work consisted in assisting school fairs, introducing sewing into the public schools, beautifying school grounds, providing drinking fountains in public schools, etc. A number of the clubs took up the study of textiles, Canadian birds, literature and such practical subjects as sewing, curing meats, canning fruit, cooking, sweeping and dusting, etc.

Many of the delegates expressed their appreciation of the circulating library provided by Macdonald College, consisting of bulletins, pamphlets, magazine clippings and books.

The following resolutions were discussed: (1) That the Department of Education be approached on the subject of the care and beautifying of school grounds and their surroundings: (2) That the Minister of Education be approached on the subject of compulsory education and free books, not for the majority, but for those who are not in a position to bear the expense of the books: (3) That the Minister of Inland Revenue be approached on the matter of the inspection of clothing and footwear, asking that a government stamp be the guarantee that the goods are as represented: (4) That the secretary of the executive correspond with the secretaries of the clubs and institutes of the other provinces to learn what they are doing in regard to this matter.

UTILIZATION OF VACANT LOTS

THE movement having for its object the utilization of vacant lots in cities and towns is spreading rapidly and this year has made distinct progress. Among the towns heard from is Chatham, Ont., whence the chairman of the Conservation Committee writes that the committee has advocated the planting of corn or potatoes because the caring for these crops will free the vacant land of weeds. All the vacant land owned by the city has been seeded, cultivators generally being given the crops for their labour. Prominent citizens have taken similar steps, although in instances early enthusiasm has faded. Efforts are also being made to get the Grand Trunk Railway Company to beautify its property, particularly in the neighborhood of the station. Divisional Superintendent Crombie thought something might be done in the way of planting ornamental shrubbery. A Horticultural Society that has recently been formed in Chatham is doing good work in advancing the beautification of the city as well as in the utilization of vacant lots.

Hamilton, Ont., has 225 vacant lots under cultivation and subject to the management of the executive of a Garden Club. Potatoes and cabbages are the principal crops, but carrots, turnips, beets and other vegetables are also being grown. City Clerk S. H. Kent says that he is very pleased with the success attained, this being the club's first year. The Public Park Board placed a large piece of ground, which it was intended to turn into a park, at the disposition of the club. This was converted into 125 lots, each approximately 40 feet by 160 feet, and this is now one immense garden. In front of each lot has been placed a sign, reading "Garden Club, Lot No.". "Citizens," adds Mr. Kent, "have been very generous in placing the use of vacant lots at the disposal of the committee and I think that next year we will have no difficulty in doubling the membership of the club."

Calgary, Alberta, has organized a Vacant Lots Garden Club which has nearly a thousand lots under cultivation, the bulk being planted in potatoes, in the cultivation of which the district has hitherto been rather deficient. There has, however, been a deal of garden stuff sown, reports Mr. Alexander Calhoun, chairman of the Garden Club. Encouragement is also being given by the aid of competent gardeners, in the growth of borders of flowers. A prize competition in potatoes and other vegetables between boys and girls has been arranged. Citizens generally are taking an interest in the movement. A leaflet issued by the Garden Club states that the membership is \$1 and the cultivation charges another dollar, although members can prepare their own lots if they prefer. A lot has 25 feet frontage and a depth usually of 130 feet. Two lots ready for planting can be had for \$3. Members get a discount from dealers in seeds and garden tools on presentation of membership card. They also receive expert advice and bulletins free. Prizes are to be offered for the best gardens. If the lots are not taken proper care of, weeds being allowed to grow, the executive have power to sequester them. The motto of the year is "Better Alberta Potatoes."

Medicine Hat, Alta., has a Garden Club, organized in February of this year. Several hundred lots have been put under cultivation. The rules of the club are very much the same as those of Calgary. A committee of ten leading citizens have charge of the movement to which the Mayor, aldermen, superintendent of city parks, and members of the Board of Trade are lending all the aid they can. The secretary of the club, Mr. R. Quinlan, states that little difficulty has been experienced in securing all the lots required, citizens generally approving of the scheme. At present the club is confining its efforts to vegetable gardening, potatoes being preferred. It is intended at a later date to take up the matter of beautification.

GARDEN PLOTS ON ST. ANDREW'S CHURCH GLEBE LAND,
OTTAWA

THE garden plots referred to in the June number of THE AGRICULTURAL GAZETTE under the title of "Vacant Lot Gardens in Ottawa" are attracting a deal of attention in Ottawa. It is believed that much good is being done by throwing this land open to people who

desire to make gardens. As previously stated, no fewer than one hundred and twenty-eight people have plots on this property. Nearly all have shown much enthusiasm and have done good work on their plots. In the few cases where those who selected plots in the beginning had not

shown sufficient interest, the plots were taken from them and given to others, there being such a demand for the plots that the Committee in charge did not wish to have them remain vacant during the summer.

On Saturday, June 19th, the minister of St. Andrew's Church, Dr. W. T. Herridge, addressed the people who were working the plots and gave them words of encouragement practically promising them the use of the plots for next year.

A patriotic garden competition for a series of prizes was also announced. This differs only slightly from the competition described on pages 210 and 211 of the March number of THE AGRICULTURAL GAZETTE. Mr. M. B. Davis, Assistant in Pomology in the Horticultural Division of the Central Experimental Farm, will act

as judge.

Five prizes ranging from five to twenty dollars, have so far been donated, two of which will be awarded for the best plots of mixed vegetables and three for the best plots of potatoes. The judging of the gardens has been arranged to take place in June, July, August and September, points being awarded as follows:

For Mixed Plot—

Assortment and Succession of	
Vegetables.....	50
Method of Planting.....	25
Cleanness and Neatness.....	25

For Potato Plot—

Cleanness and Neatness.....	50
Uniformity.....	25
Condition of Tops.....	25

AGRICULTURAL EDUCATION IN BRITAIN

AS in other countries, so in Great Britain the absolute independence of agriculture in matters of education has passed. Year by year the debt the state owes to the farmer is being more and more recognized. Habits and customs are both changing. Up to comparatively recent years no special effort was made by state or municipality to rear the son in the avocation of the father. It was taken as an axiom that the heir apparent would follow in the footsteps of his male parent, and that the leased farm would go on from family to family as long as the burdens of rent and taxes could be met. Agriculture was seemingly of little more account than any other line of business. Every tub must stand on its own bottom was the maxim. Now there is an upheaval, if not as great as that in the United States, or as of as much prominence as that in Canada, it is equally as important, and, in a measure, equally as progressive.

Regulations somewhat similar to those that govern the administration of the AGRICULTURAE INSTRUCTION ACT of Canada have recently been issued for new grants in aid of agricultural education and research. These grants are made to approved institutions for the purpose of providing instruction in agriculture, forestry and horticulture of an advanced type. Supplementary grants are also made to selected colleges that make a study of agriculture. An advisory committee has been formed, members of which will visit the institutions in receipt of grants and advise the Board of Agriculture on the

progress that is being made. Three objects are in view in the new regulations, first, to aid on an increased scale the expenditure of those local authorities whose work has hitherto been aided by relatively small grants; second, to provide a uniform system of awarding grants; third, to link up the higher and lower forms of agricultural education.

The regulations are also intended to equalize the charge upon ratepayers in different counties by taking into account the whole of the work and expenditure of local authorities on agricultural education on a uniform basis. The Board of Agriculture takes the view that one-third of the local expenditure should be regarded as the minimum contribution by the ratepayers in each county, that the second share in the expenditure should come from the State in the form of the residue grant, and that the remaining third should be derived from the Board's grant. In fixing the minimum qualifying contribution for a grant, the Board will take account of the character of the agricultural instruction provided and the net expenditure incurred by the agricultural education committees. The view is also taken that the requirement of a definite contribution by ratepayers to the college will not only lead to a closer association of the county agricultural staff and the staff of the college, but will also provide the institutions in question with the means to extend their work in directions which are likely to prove of benefit to the locality.

EXPERIMENTS IN SASKATCHEWAN

MR. R. McLaren, who, for several years, has been giving attention to the growing of hardy alfalfas and clover in the province of Saskatchewan, and who won first prize for alfalfa seed at the provincial seed fair last winter, gives, in the following letter, the results of his experiments with these crops: "On June 6th, 1914, I sowed 20 acres of Grimm's alfalfa (Lyman's strain) on deep back-setting, well worked down, principally with a float to get a smooth surface and a very fine seed bed. The seed, which was inoculated with Farmogerm, germinated in three or four days, and in three months my stand of alfalfa was over three feet high; after taking a crop of seed off it last year, it has come through the winter in excellent shape. I crossed and angled the field this spring with an alfalfa cultivator, which produced rapid growth and served to remove all weeds and grass. Until 1914 my experiments with Siberian alfalfas were confined to several hundred plants of three varieties, namely, *Cossack*, a hay variety with flowers similar to the Grimms, but lighter in colour, as a rule. This proved to be a very strong growing plant with very heavy foliage and a heavy seeder. *Semipalatinsk*, this is a yellow flowered tall growing plant, with falcate or cycle shaped pods, that when ripe, will shell a large percentage of seed in the ground. This variety will some day be valuable as a pasture plant, as it is a dry land plant and the shelling of the seed will perpetuate it for all time. The *Obb* alfalfa seems to be the hardiest of the lot, but the leaves are very fine and numerous, and it is inclined to be of a prostrate or creeping nature, shelling a great part of its seed when ripe. The seed of this variety is small and of different colours.

The seed of these hardy alfalfas is very hard, and should be treated by freezing or mixing with coarse sharp sand, and put into a strong bag and pounded before sowing; this injures the outer hull or shell, allows water to penetrate the seed and thus hastens germination, but of the two methods, freezing of the seed is to be preferred.

I have about five acres of four different varieties of Siberian alfalfas, from which I expect considerable seed this year; they have wintered well and I have already

harrowed them twice and intend going over them again with the alfalfa cultivator.

RED CLOVER

The Siberian red clover I have was brought over from Siberia in November, 1913, by Neils Hansen, who is known as the 'Alfalfa Explorer,' from whom I was fortunate in securing 8,000 seeds. In May, 1914, I sowed these seeds in my garden in very moist soil, but as I had not taken the precaution to treat the seed in any way only about five per cent germinated; I was careful, however, to pull out all the weeds, keeping the ground in good condition, and this spring I believe all the remaining seeds in the soil germinated and are now coming on fine. This serves to demonstrate that all hardy legume seeds coming from a northern climate are very hard and need to be treated before sowing to get the best results, or be sown in the fall of the year, so that the frost will work on the seed and cause it to germinate early in the spring.

WHEAT

I also secured 100 grains of Mongolian wheat from Hansen that had been growing in Siberia with success for a number of years. I planted them in my garden also; the cut worms destroyed 25 plants, and from the remainder I threshed out 21 pounds of seed, which I have again planted, and if it increases at the same rate as last year, I will have enough to sow 2 acres next year.

This wheat is of a fine colour and very large and hard; I sowed it last year on the 15th of May and cut it on August 14th. The heads are very long and big, each ear having five kernels, but the only objection I have to it is that it is bearded; the straw is very strong and grows about as tall as Marquis.

MILLET

I also sowed about an ounce of Siberian Proso or millet; this is very productive and is also a dry land plant, which I believe would do well in Southern Alberta, when there was a failure of hay crop. The seed is large and is recommended for hogs and chickens. From the ounce I sowed I threshed over a peck of seed, so you see it is very productive. The seed is white."

AGRICULTURAL COLLEGE GRADUATES

The following list gives the names and positions of the 1915 graduates from the Canadian agricultural colleges and the School of Agriculture, Ste. Anne de la Pocatière, Quebec:—

NOVA SCOTIA AGRICULTURAL COLLEGE

- | | |
|---|---|
| Congdon, Harris, Dartmouth, at home. | McKenzie, A. W., Bedford, N.S., at home. |
| Crosby, Aaron, Yarmouth, assistant at Lawrencetown Creamery. | McKenzie, J. M. F., Coxheath, C.B., Assistant Agricultural Agent, C.B. counties, N.S. |
| Dunleavy, Henry, Dominion, C.B., Assistant in Poultry Department, Nova Scotia Agricultural College. | McDonald, Percy G., Upper Dyke Village, at home. |
| Eldridge, L. W., 199 Boylston St., Brockton, Mass., working on a farm in Mass. | Notting, Errol, Dartmouth, at home. |
| Fuller, Albert S., Yarmouth, at home. | O'Neill, Geo., Searsville, N.B., at home. |
| Findlayson, D. K., Grand River, C.B., at home. | Redmond, Athol, Dartmouth, at home. |
| Frier, Arthur M., Shediac, N.B., enlisted. | Retson, William, Truro, N.S., Head Herdsman Nova Scotia Agricultural College. |
| Griffiths, G. T., Mt. Forest, Ont., not reported. | Schurman, D. C., North Bedeque, P.E.I., at home. |
| Holman, Douglas, St. John, enlisted. | Stanford, Miss Pearl, Dartmouth, at home. |
| Humphrey, A. E., Apohaqui, N.B., Assistant in Drainage Dept., Nova Scotia Agricultural College. | Sutton, J. S., Nappan, at home. |
| Holmes, Clarence, Avonport, N.B., enlisted. | Sweeney, J. R., Melrose, N.B., Assistant Dairy Department Nova Scotia Agricultural College. |
| Huddart, John, New Glasgow, at home. | Taylor, Eldon, Little Shemogue, N.B., at home. |
| Melanson, J. T., Comeauville, N.S., at home. | Trueman, H. L., Truro, on Nova Scotia Agricultural College Farm. |
| Machum, Donald, St. John, N.B., at home. | Wood, Leslie, Carter's Point, N.B., at home. |
| McAulay, F. L., Lower Millstream, N.B., at home. | Weldon, Arthur H., Dartmouth, enlisted. |

SCHOOL OF AGRICULTURE, STE. ANNE DE LA POCATIÈRE

- | | |
|--|---|
| Gosselin, Louis Alfred, B.S.A., Horticulturist at the School of Agriculture of Ste. Anne de la Pocatière. | vincial Government in the drainage work done in the province. |
| Dionne, François, foreman of the Cured Meats Department (bacon industry), at the School of Agriculture of Ste. Anne de la Pocatière. | Paquet, Alphonse, assistant to Mr. J. C. Magnan, Agriculturist, county of Portneuf. |
| Belzile, Romuald, employed by the Pro- | April, Nolasque, works on his father's farm at Saint-Hubert, county of Témiscouata. |
| | Jean, Ulric, Amqui, county of Matane. |

MACDONALD COLLEGE

- | | |
|---|--|
| Boyce, George Coonley, Athelstan, Que., Assistant, Macdonald College Demonstrator, Ayer's Cliff, Que. | King, James Hayes, Sussex, N.B., Assistant Macdonald College Demonstrator at Cookshire, Que. |
| Evans, Harry Insley, Hampton, N.B., at the European war. | McCormick, James Hugh, Barbadoes, B.W.I., at the European War. |
| Hodgins, Ellard Lee, Portage du Fort, Que., on home farm. | McKechnie, Richard Edey, Wyman, Que., at the European war. |

- McQuat, John Egbert, Lachute, Que.,
Macdonald College Demonstrator to
Rural Schools of Quebec, Macdonald
College, Que.
- McQuat, Leonard Christie, St. Andrews
East, Que., Assistant Macdonald Col-
lege Demonstrator, at Lennoxville, Que.
- Mitchell, Homer Dean, Drummondville,
Que., at the European war.
- Presley, Fred Young, 256 Ferry Street,
Malden, Mass
- Ricker, Earl Malcolm, 45 Fairmount St.,
Malden, Mass.
- Roy, Harold Bower, Sabrevois, Que.,
District Representative, Ontario De-
partment of Agriculture, Sudbury, Ont.
- Russell, Charles, 400 W. 121st St., New
York, N.Y., on home farm.
- Sadler, Wilfred, Assistant, Bacteriological
Department, Macdonald College, Que.
- Taylor, Andrew Gilmore, Dewittville, Que.,
on home farm.
- Westbrook, Lawrence Jay, Morganville,
N.Y., Assistant Macdonald College Dem-
onstrator, Shawville, Que.
- Williamson, Harold Freeman, Ste. Anne de
Bellevue, Que., at the War.
- Durling, Vernon Beckwith, Lawrenceville,
N.S., Macdonald College Demonstrator
at Lachute, Que.
- MacDougall, Winfred Gregor, Tatehurst,
Que., Macdonald College Demonstrator
at Lennoxville, Que.

ONTARIO AGRICULTURAL COLLEGE

- Beatty, H. A., enlisted, First Universities
Company.
- Bell, W. J., Department of Agriculture,
Charlottetown, P.E.I.
- Bligh, R. D. L., Department of Agriculture,
Kentville, N.S.
- Burrows, L. F., Horticultural Branch, De-
partment of Agriculture, Victoria, B.C.
- Campbell, A. M., enlisted in South Africa,
home address Berea, Durban, Natal.
- Colquette, R. D., Rural Publishing Co.,
Peterborough, Ont.
- Cory, A., enlisted, Second Canadian Con-
tingent.
- Crawford, H. G., Field Assistant to Pro-
vincial Entomologist, O.A.C., Guelph.
- Creelman, J. M., Dominion Cold Storage
Plant, Grimsby, Ont.
- Croskery, W. M., farming, Kinburn, Ont.
- Culverhouse, P.E., Assistant Representa-
tive, Department of Agriculture, Bur-
lington, Ont.
- Cumming, R. E., Assistant Representative,
Department of Agriculture, Orangeville,
Ont.
- Donald, F. C., Assistant Representative,
Department of Agriculture, Hamilton,
Ont.
- Donaldson, R. W., enlisted, First Univer-
sities Company.
- Dustan, A. G., Field Assistant to Dominion
Entomologist, Bridgetown, N.S.
- Finn, R. A., Assistant Representative,
Department of Agriculture, London, Ont.
- Foyston, B. E., Field Agent, Department
of Physics, O.A.C., Guelph.
- Francis, J. F., Poultry Farming, cr. J.
Fitzsimmons, Walkerville, Ont.
- Freeborne, S. G., Assistant to Secretary,
Grain Growers' Grain Co., Winnipeg,
Man.
- Frejd, D., Drainage Expert, Department
of Agriculture, Toronto, Ont.
- Goodman, F. L., Horticultural Branch,
Department of Agriculture, Victoria,
B.C.
- Gordon, E. G., farming, Elora, Ont.
- Gray, A. J., home, Plaza del Ray 7, Car-
tagena, Spain.
- Hales, J. P., Poultry Department, O.A.C.,
Guelph.
- Hall, E. R., Assistant Representative,
Department of Agriculture, Markdale,
Ont.
- Hampson, E., Agricultural Field Agent,
Commission of Conservation, Ottawa.
- Harris, A. G., Horticultural Experimental
Station, Vineland Station, Ont.
- Hart, E. W., enlisted, Second Canadian
Contingent.
- Hinman, R. B., Assistant Representative,
Department of Agriculture, Aylmer,
Ont.
- Hogarth, E. G., Farm Manager, Rae
Estate, Scarboro, Ont.
- Holmes, H. M., farming, Raymond, Alta.
- Horobin, H. P., farming, Cornwall-on-
Hudson, N.Y., U.S.A.
- Kedey, W. M., enlisted, First Universities
Company.
- Kerr, W., Assistant Representative, De-
partment of Agriculture, Perth, Ont.
- Laird, D. G., Analyst, Chemical Depart-
ment, O. A. C., Guelph.
- Locke, W. A., Assistant Representative,
Department of Agriculture, New Lis-
keard, Ont.
- Manton, G., florist, Eglinton, Ont.
- McQueen, M. J., farming, Elora, Ont.
- Mucklow, G., cr. W. Fernie, Box 308,
Victoria, B.C.
- Neff, E. F., farming, Hamilton, Ont.
- Neilson, J. A., Assistant Representative,
Department of Agriculture, Petrolia,
Ont.
- Nourse, C. B., enlisted, Princess Patricia's
Canadian Light Infantry.

- Paterson, F. C., District Representative, Department of Agriculture, Huntsville, Ont.
- Pawley, N. H., Department of Agriculture, Regina, Sask.
- Peren, G. S., enlisted, Second Canadian Contingent.
- Ponton, J. N., home, Bromptonville, Que.
- Robb, O., Horticultural Experimental Station, Vineland Station, Ont.
- Sackville, J. P., Department of Animal Husbandry, O.A.C., Guelph.
- Sands, D. R., Investigating White Pine Rust in Ontario, Headquarters, O.A.C., Guelph.
- Shipton, J. C., enlisted, First Universities Company.
- Smith, D. M., home, 35 McPherson Ave., Toronto, Ont.
- Steckle, H. S., farming, Strasburg, Ont.
- Stratford, R. K., home, Brantford, Ont.
- Tawse, W. J., Dawson Elliott Commission Co., Toronto, Ont.
- Townsley, W. A., enlisted, Second Canadian Contingent.
- White, W. R., farming, Myrtle Station, Ont.
- Winslow, J. H., Canada Fruit Co., Moose Jaw, Sask.

MANITOBA AGRICULTURAL COLLEGE

- Lohr, Lester V., District Representative, Neepawa, Man.
- Wiener, W. T. G., District Representative, Morris, Man.
- Smith, Nelson, District Representative, Killarney Man.
- Danielsson, H. F., District Representative, Arborg, Man
- Stone W. J., District Representative, Dauphin, Man
- Betts, William, Agricultural Secretary, Department of Agriculture, Regina, Sask.
- Brown, J. L., Agricultural Secretary, Department of Agriculture, Regina, Sask.
- Bjarnason, S. A., Horticulturist, Dominion Experimental Farm, Brandon, Man.
- Dunlop, S. F., Assistant Agriculturist, Department of Agriculture, Victoria, B.C.
- English, H. O., Instructor in Soils and Crops, Department of Agriculture, Victoria, B.C.
- Irwin, J. F., Assistant to the Superintendent, Demonstration Farms, Department of Agriculture, Ottawa.
- McIntyre, H. H., Department of Agriculture, Edmonton, Alta.
- Milne, Basil C., Assistant to the Superintendent, Experimental Farm, Lacombe, Alta.
- Muckle, Robert M., Inspector of Apiaries for Manitoba, Department of Agriculture, Winnipeg.
- Sirett, John E., Instructor in Agriculture, Manitoba Department of Education.

Of the following, all are now engaged in farming, and it is the purpose of the majority to continue in this pursuit:

- Barker, Willis R., Okotoks, Alta.
- Green, J. H., Boharm, Sask.
- Harkness, William, St. Agathe, Man.
- Hicks, W. H., Souris, Man.
- Hudson, Harry, Brookdale, Man.
- Hutton, James W., Redvers, Sask.
- Lothian, J. F. Pipestone, Man.
- MacWilliam, William E. C., Mount Royal, Man.
- Ramsay, Emerson C., Bladworth, Sask.
- Richardson, Charles D., Grenfell, Sask.
- Robson, Leslie W., Deleau, Man.
- Stevens, Eric H., Bladworth, Sask.

There is no calling quite so honourable, independent, or where the avenues are so remunerative as farming. It is an indisputable fact that the farmers of the country have a higher average of wealth than any other class of people. Farmers do not think enough of themselves. Because they are farmers they think they are only farmers, and they forget the fact that if there is any one man who should hold up his head as one of the aristocracy of the land, it is the farmer. What other class of men have the same independent life? You can commence work and quit whenever you like. If you want to quit for half a day you can do it. At the same time you have an opportunity to live on the very best of the land at the actual cost of producing it.—*Hon. Jas. S. Duff, Ontario Minister of Agriculture.*

SOCIETIES AND ASSOCIATIONS

SASKATCHEWAN STOCK GROWERS' ASSOCIATION

The annual convention of the Saskatchewan Stock Growers' Association was held at Moose Jaw on June 10th, 11th and 12th. There was a large attendance of delegates. The following resolutions were adopted after full discussions:—

"The convention next year to be held at Swift Current on Wednesday and Thursday in the second week of June."

"That the Provincial Government be requested to appoint a Live Stock Marketing Commission to solve the marketing end of the Live Stock Industry in Saskatchewan:—1st to inquire into and study the needs of stockmen; 2nd to submit a solution; 3rd to appoint a permanent commission to put the solution into effect and if possible co-operate with other western provinces, and that when the Royal Commission is seeking for information every member of this association is requested to attend the most convenient session of said commission and assist by giving all possible information on the subjects in inquiry."

"That this association authorizes the executive to immediately and seriously consider the appointing of a market expert whose duty it shall be to secure and place at the disposal of the members from time to time or at request full and reliable information as to prices of all classes of stock, available markets, and such other information of a like character as may be deemed advisable."

"That we, the Stock Growers' Association in convention assembled this 10th day of June draw the attention of the Dominion government to the quantity of sale horses that are ready for purchase for war

purposes in western Canada and request that if at all possible arrangements be made at the earliest possible date for a very vigorous policy of purchase being established."

Following are the officers elected:—

Hon. president, W. G. Ogle, Wood Mountain; president, Ole Olafson, Mortlach; vice-president, J. H. Grayson, Moose Jaw; secretary-treasurer, J. D. Simpson, re-elected; Directors at large, T. Bonneau, Willow Bunch; Jack Byers, Valjean; Joe Wylie, Maple Creek; W. H. Kirkaldie, Gerrowville, and Max Hauser, Wood Mountain.

At the annual meeting of the Western Stock Growers' Association, recently held at Medicine Hat, it was decided to apply to the Western Live Stock Union for affiliation. The Western Live Stock Union is largely composed of members of Record Associations living in Western Canada and are therefore, as a rule, breeders of pure bred stock. The Western Stock Growers' Association represents not only the original range cattle men, but also the breeders and raisers of commercial live stock, more particularly cattle. Following are the officers elected: Hon. Presidents, Hon. Martin Burrell, Hon. Duncan Marshall; president, John H. Spencer, Medicine Hat, Alta.; first vice-president, Dr. J. G. Rutherford, Calgary, Alta.; second vice-president, J. L. Waters, Tees, Alta.; executive committee, Messrs. W. Huckvale, A. P. Burns, James Mitchell, E. O'Connor, J. H. Wallace, George Lane, G. McElroy, George Mackie, D. J. McMillan, Duncan Clark, David Cargill, A. E. Cross, T. Neuman, J. A. Young and Fergus Kennedy. The secretary is H. W. Ireland of Medicine Hat, Alta.

NEW PUBLICATIONS

THE DOMINION DEPARTMENT OF AGRICULTURE

THE DOMINION EXPERIMENTAL FARMS

THE DIVISION OF BOTANY

Medicinal Plants and Their Cultivation in Canada, by J. Adams, M.A., Assistant Dominion Botanist; Bulletin No. 23, Second Series; Division of Botany. Mr. H. T. Güssow, Dominion Botanist, in an intro-

ductory letter explains that the reason for the preparation of this paper is furnished by the number of enquiries received regarding the medicinal properties of certain plants. Mr. Adams, who was formerly a lecturer on Botany and Vegetable Materia Medica at Dublin, Ireland, has gone thoroughly into his subject. In the course of 60 pages, including a most exact index, the Bulletin deals with around five hundred plants or species of plants. Their properties and habitations are described

and their uses set forth. Some hundred and twenty outline illustrations supply means of identification. For those who require further information than is contained on the Bulletin a list of obtainable publications is given.

THE ENTOMOLOGICAL BRANCH

Cutworms and Their Control, by Arthur Gibson, Chief Assistant Entomologist; Bulletin No. 10, Entomological Branch. The destructiveness, habits, history and varieties of one of the most ruthless pests known to agriculture are in this 32-page publication fully and adequately described. After a brief summary referring to the prolific nature of the worm, to its habits, the extent of the damage it causes and the best manner of its repression, Mr. Gibson proceeds to deal with the nature of injuries, with the natural enemies of cutworms, preventive measures, and the fifteen or twenty different species. Plentiful illustrations of the development and methods of the creature make the Bulletin complete in its instructiveness.

The Hessian-Fly and the Western Wheat-Stem Saw-Fly in Manitoba, Saskatchewan and Alberta is the title of Bulletin No. 11 issued by the Entomological Branch. Mr. Norman Criddle, Field Officer, is the author. The Bulletin is divided into two parts, the first treating of the Hessian-fly, and the second of the Wheat-stem Saw-fly. Of the one Mr. Criddle says "The Hessian-fly is an insect that has taken enormous toll from the farmers of North America, the aggregate amounting to many millions of dollars," and, of the other, "of recent years the loss by this pest has been quite severe in portions of the Prairie Provinces, though the insect has not always been recognized." Those two quotations are sufficient to indicate the importance of this 23-page Bulletin, which describes the history, characteristics and destructiveness of both pests, at the same time telling how their presence can be identified and the methods of suppression that should be adopted.

Seasonable Hints, No. 2, July, 1915. Perhaps the most valuable hint in the second number of this seasonable publication, issued under the auspices of the Experimental Farms, is the suggestion that trained men, who between them cover the entire length and breadth of the land, are waiting to study and advise on any problem relating to agriculture that is submitted to them. Seasonable Hints, which can be had free on application to the Publications Branch, Department of Agriculture, Ottawa, gives a list of the principal officers at Ottawa and all of the farms, stations and sub-stations in the country, to the superintendent of each of which

questions can be addressed. The contributors to the July number are: Director Grisdale and Messrs. E. S. Archibald, Dominion Husbandman; F. C. Elford, Dominion Poultry Husbandman; W. L. Graham, Field Husbandry Division; M. O. Malte, Dominion Agrostologist; H. T. Güssow, Dominion Botanist; W. T. Macoun, Dominion Horticulturist; F. W. L. Sladen, Apiarist; F. Charlan, Dominion Tobacco Specialist; Frank T. Shutt, Dominion Chemist, and J. F. Watson, Chief Officer Extension and Publicity Division.

THE FRUIT BRANCH

Fruit Growers of the Dominion of Canada, proceedings of the Fourth Conference, held at Grimsby, September 2nd, 3rd and 4th, 1914; 113 pages. An almost verbatim report of the proceedings at the conference, there is here to be found a vast fund of information on the fruit prospects and situation of Canada. Following the brief, opening business-like speech of the Dominion Fruit Commissioner, Mr. D. Johnson, who was in the chair. Mr. George E. McIntosh, Traffic Expert of the Ontario Fruit Growers' Association, delivered an address on "Transportation applied to Fruit" which led to an illuminating discussion, during which Mr. J. A. Ruddick gave some statistics regarding fruit importations to Great Britain and the exportation of dried and evaporated apples from Canada. Great Britain's importations of apples from Germany, the Netherlands, Belgium, France and Portugal reached a million or a million and a half bushels during a period of five years, and of pears something very little less. Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner, spoke on "The Pre-cooling of Fruit," Mr. A. E. Adams, Secretary, United Fruit Companies, Nova Scotia, on "Systematic Co-operation in Nova Scotia," the late Mr. Robert Thompson, on "Marketing of Fruit," Mr. Elmer Lick, Oshawa, on "The Fruit Marks' Act," and Mr. F. W. Broderick on "Fruit Conditions in Winnipeg and the Canadian West," and Mr. Robert Thompson on "The Standardization of Packages." Discussions followed in each instance and resolutions founded thereupon were passed. The Honourable the Minister of Agriculture for the Dominion attended and delivered a brief address, in which he expressed regret that a pressure of affairs prevented him spending that time at the conference that he would have liked.

Fruit Crop Report No. 1. The important announcement is made in this Report, that, starting on August 1st, the Fruit Commissioner's Branch will publish telegraphic reports of the immediate fruit situation.

These reports will be received at least twice a week by telegraph from competent men in all the large producing and marketing centres in Canada and Great Britain. They will be sent to any one requiring them by mail immediately on receipt, or by wired night letter to those willing to defray the cost of the same. Application must be made to the branch directly. Report No. 1 is dated May 20 and deals with the prospects at that time.

THE PUBLICATION BRANCH

Flax Fibre, Pamphlet No. 1. This pamphlet describes briefly flax culture in Canada, the method of handling flax at the mill of The Canadian Flax Mills Company, St. Catharines, Ontario, and contains also a description of the Flax Scutching Process and Plant at Goderville in France.

THE PROVINCIAL DEPARTMENTS OF AGRICULTURE

PRINCE EDWARD ISLAND

The Year Book of the Province of Prince Edward Island recently issued provides a fund of information regarding the industries and trades of the Island. It shows remarkable progress in fox farming and considerable advancement in the dairy and poultry industries. The first egg circle was formed on March 18, 1913. Up to the end of that year business amounting to \$14,190.11 had been done by the egg circles, which had increased in number to eleven. From the spring of 1914 to the end of February, 1915, the value of shipments made by the egg circles, which then numbered 62, amounted in value to \$230,000. Five egg candling and grading stations have been established under the control of the Prince Edward Island Co-operative Egg and Poultry Association, formed in 1914 for the general government of the circles.

NOVA SCOTIA

The Report of the Secretary of Industries and Immigration for Nova Scotia for 1914 shows that in ten years the province has had marked development. The report goes comprehensively into the advantages offered by Nova Scotia to settlers and into the value of co-operation to the farming community. It also details the successful working of the measure passed in 1912 entitled "An Act for the Encouragement of Settlement on Farm Lands."

Annual Report of the Department of Agriculture. The Annual Report of the Secretary for Agriculture, Nova Scotia, for the year 1914, takes 423 pages, with

illustrations, maps, diagrams and tables. The Report is composed of three parts, the first devoted to a review of the season as regards crops, live stock, etc., and to reports of the various officers of the Department and of the College of Agriculture, the majority of whom hold dual positions as heads of divisions of the Department and as instructors in the college; the second to a report of the Superintendent of Agricultural Societies, Associations and Exhibitions, and the third to a series of articles on Poultry Raising in Nova Scotia, edited by J. P. Landry, Provincial Poultry Superintendent.

The Report testifies to the progress of the College of Agriculture and to the good effect the short courses are having.

The number of live stock in the province is given as: horses 67,688; milch cows 138,534; other cattle 161,300; sheep 217,698; swine 57,817; poultry 1,082,632. There were held during the year 215 official public meetings with an average attendance of 59. The number of agricultural societies at the end of the year was 227, having increased from 160 in 1907. The first Women's Institute was organized in July 1913. In December, 1914, the number was 36. The number of entries in the field crop competitions was 326 against 291 in 1913 and 137 in 1912. Thirty per cent more butter was manufactured in Nova Scotia creameries in 1914 than in 1913, which showed 49.8 per cent over 1912. The increase since 1910 has been 360 per cent.

No fewer than 170 pages of the Report are devoted to the poultry industry, Mr. J. P. Landry, Manager and Lecturer of the Poultry Department, having collected a volume of statistics and information showing what various provinces have done and what might be done, by Nova Scotia in particular. Papers to this part are contributed by Professor M. A. Jull, Macdonald College, Quebec; Mr. Seth Jones, Superintendent of Poultry for New Brunswick; Mr. T. A. Benson, Dominion Poultry Representative for Prince Edward Island; Mr. F. C. Elford, Dominion Poultry Husbandman; Mr. W. B. Crowell, Acadia, Yarmouth County, N.S.; Mr. J. P. Landry; Professor W. R. Graham, Ontario Agricultural College; Mr. C. H. Higgins, B.S., D.V.S., Pathologist, Health of Animals Branch, Department of Agriculture, Ottawa, and Mr. A. W. Foley, Edmonton, Alta.

"Don'ts for Beginners in Poultry Keeping," from the Cyphers Company Service Bulletin, might prove profitable reading for breeders. A directory of poultry breeders in Nova Scotia closes the report.

Part three of this report has been published as a separate bulletin.

NEW BRUNSWICK

Report on Horticulture, Province of New Brunswick, 1914; a complete review of the situation in every county of the province by A. G. Turney, B.S.A., Horticulturist, R. P. Gorham, B.S.A., first Assistant Horticulturist and D. B. Flewelling, B.S.A., second Assistant Horticulturist; 47 pages with illustrations.

QUEBEC

A Preliminary List of the Insects for the Province of Quebec, Part II—Diptera (two-winged flies), compiled by Albert F. Winn, Westmount, and Germain Beaulieu, Ottawa, has made its appearance as a supplement to the 7th Report of the Quebec Society for the Protection of Plants, 1915. It is explained in the introduction that the society published Part I—Lepidoptera, in 1912. Part II makes a pamphlet of sixty pages and gives the varieties arranged according to families, of which there are exactly fifty represented in the province of Quebec.

The Ninth Announcement of Macdonald College (McGill University) covering the college year of 1915-16 was recently issued. The first term of the School of Agriculture begins September 27th, 1915, and ends December 18th, 1915. The second term begins January 3rd, 1916, and ends for the first and second years on April 22nd and for the third and fourth years on May 20th. The first term of the School for Teachers commences September 2nd, 1915, and ends December 18th; the second term begins January 3rd, 1916, and ends June 8th. The first term of the School of Household Science begins September 7th, 1915, and ends December 18th; the second term begins January 3rd, 1916, and ends June 8th. Short courses in Animal Husbandry, Cereal Husbandry, Horticulture and Poultry will be held at different centres in the province in January and February, 1916, the exact dates of which will be given in a special circular. Short courses in Household Science will be held from September 21st to December 18th, 1915, from January 3rd to March 17th, 1916, and from March 20th to June 8th, 1916. A short course in dress-making will be held from January 3rd to March 17th, 1916. Application for the announcement should be addressed to the Principal of Macdonald College, Ste. Anne de Bellevue, Que.

ONTARIO

"Home-Made Septic Tank for the Disposal of Farm Sewage" is the title of an article by J. W. Stark, B.S.A., that has been reprinted in circular form by the Peel County Branch of the Ontario Department of Agriculture. A subject is here dealt with that should receive the widest possible attention.

The Report of the Women's Institutes of the Province of Ontario, 1915, Part II, contains the Superintendent's announcement of the summer series of meetings extending from May 26th to July 13th. It also gives a list of the lecturers and the subjects with which they were to deal. Provision was made for demonstrations by local authorities in judging live stock.

The announcement is made by the Fruit Branch of the Ontario Department of Agriculture that a circular will be issued each month in the year dealing with orchard operations and other fruit topics of uppermost importance at the time. The first of the series dated May, Vol. 1, No. 1, deals with the necessity of thinning apple trees. Early apples, the circular says, promise a good crop but, generally speaking, a light crop is likely. Pears promise well. Plums and peaches promise heavy crops. A good crop of cherries is also anticipated.

Natural Swarming of Bees and How to Prevent It, by Morley Pettit, Provincial Apiarist; Bulletin 233, Fruit Branch. There are three great problems in bee management, states Mr. Pettit, namely Brood Diseases, Wintering and Swarming. The first two, he says, are very real and the third comes home to every beekeeper whether he realizes it or not. Mr. Pettit proceeds to urge the importance of business methods and the necessity of being master of the situation. While bees require less frequent attention than other live stock, what attention they do need they require systematically and thoroughly. He advises making one day Apiary day and adhering to it. Mr. Pettit gives the causes of swarming and tells how to recognize its approach. He explains how to prevent it and dwells upon the importance of having a good queen. The essentials, he says, of swarm control are room, ventilation and shade, given in time; also a good young queen of a non-swarming strain. Illuminating illustrations increase the value of the bulletin, which in its nature is very complete.

SASKATCHEWAN

The Fourth Annual Report of the Bureau of Labour of the provincial Department of Agriculture, 1914, supplies much interesting information regarding harvest labour in Saskatchewan. It also contains a large amount of industrial statistics, showing values, progress of construction, rates of wages paid and so on.

The fifth annual report of the Director of Agricultural Extension, issued by the provincial Department of Agriculture, contains a complete review of the work of

the agricultural societies of Saskatchewan during 1914. A comparative table covering nine years shows that in that time the operations of the societies have developed to such an extent that while in 1906 only 34 exhibitions, 32 standing crop competitions and 20 seed fairs were held, last year there were 12 spring stallion shows, 49 ploughing matches, 100 exhibitions, 25 judging competitions, 25 standing crop competitions and 35 seed fairs. Complete details are given in the report of the proceedings at the agricultural societies' convention held at the University of Saskatchewan January 12 to 14, 1915, when 89 societies were represented. Results of agricultural competitions and lists of farmers' meetings and of Home Makers' Clubs are given.

BRITISH COLUMBIA

British Columbia Fruit is the title of a 78-page booklet issued by the British Columbia Fruit Growers' Association. The book is dedicated to the Patriotic Housewives of Western Canada and, pointing out the advantage of British Columbia fruit, offers a plea for the use of Western fruit, and 225 recipes for the use of same. Many illustrations add interest and information relative to the best varieties of apple, strawberry, raspberry, cherry, peach, plum, etc.

MISCELLANEOUS

Among the publications received recently by The Publications Branch are Special Leaflet No. 28, "Suggestions for the Cultivation of Catch Crops and Home Grown Feeding Stuffs" and Special Leaflet No. 29, "Flax Growing for Fibre", published by the Board of Agriculture and Fisheries, London, England.

Propagation of Upland Game-Birds. This is a seventy-page booklet, suitably illustrated, prepared by Herbert R. Job and published as Bulletin No. 2, by The National Association of Audubon Societies with headquarters at 1974 Broadway, New York. The publication deals in detail with the care and propagation of such birds as quails, pheasants, grouse, and wild turkeys, together with notes on the breeding of certain other species. Copies of the bulletin are available at twenty-five cents per copy.

Manual Training and Vocational Education; Chas. A. Bennett, Editor; Wm. T. Bawden, Managing Editor; published monthly, excepting July and August, by The Manual Arts Press, Peoria, Ill. There is a fund of helpful information in the June number of this excellently printed and engraved magazine. The first few pages are devoted to an article urging more attention to commercial matters in the public and high schools. Articles on the Philippine Public School display at the Panama Exposition and on Vocational Education in Brazil are followed by some practical papers on woodworking, architectural drafting, construction, etc., with descriptive illustrations.

A Handbook of Nebraska Grasses, with illustrated keys for their identification, published by the Agricultural Experiment Station of Nebraska, is a hundred and twenty page publication that is not without interest in Canada, seeing that some of the 352 varieties described are not only to be found in this country, but are natives. Exact details of every specie of grass are given with minute explanatory illustrations in classified order.

The day of scientific gardening and intensive growing, under glass and out-of-doors, is at hand in the province of Ontario. The art of packing and the science of selling are two branches of the business that must receive more attention in the future. We must grapple with these important questions very soon. The public are demanding neat packages in vegetables as in fruits. We must give the people what they want, or in other words, what they will pay for. I believe in advertising neat packages, and direct dealing with the consumer as much as possible. This is a field of endeavour that is wide open, and awaits the man with a vision of the future.—*President C. W. Baker at Ontario Vegetable Growers' Convention.*

BOOK REVIEWS

Correlated Courses in Woodwork and Mechanical Drawing, by Ira S. Griffith, A.B., third edition; 238 pages, with illustrations and diagrams; The Manual Arts Press, Peoria, Ill.; price \$1.50.

Beginning Woodwork at Home and in School, by Clinton Sheldon Van Duesen, M.E., illustrated by Edwin Victor Lawrence; fourth edition; 99 pages; The Manual Arts Press, Peoria, Ill.; price \$1.00.

Here are two most valuable books for manual training students and those men and women, boys and girls, interested in woodworking and mechanical drawing. Prepared for the schools and colleges of the United States the subject-matter knows no limitation of nationality, of kindred or race. Art and work and anything relating thereto are for all the world. The first-mentioned book is of course the more advanced and pretentious of the two. After the introduction, telling of the objects aimed at, a series of lessons are given for grades VII, VIII and IX of the public schools and for High School pupils, in a series of groups. Expenses involved and the equipment necessary are fully explained. No fewer than 103 pages in the third part of the book are devoted to well-defined plates of projects for beginning woodwork and mechanical drawing.

The second book, it is explained in a foreword by Professor Van Deusen, is intended as a definite statement of steps that may be followed by a beginner in learning the fundamental principles of woodworking. Instead of giving a general discussion of woodworking processes, the book describes and illustrates principles by means of specific examples. The instructions provided deal with such subjects as the equipment of the workshops, Laying Out and Sawing, Planing, Curved Sawing and Spokeshaving, Chiseling and Joining, Chiseling and Planing, and Furniture Making (Keyed Construction, Closed Mortise-and-Tenon Construction), all with explanations and side illustrations. An appendix gives lists of tools, materials and dimensions, detailed description of planes and directions for sharpening tools.

The General Education Board, 1902-1914; New York General Education Board, 1915; 254 pages.

This is a complete history of the twelve years the Board has been in existence, of its formation, and of the generosity of its chief benefactor, John D. Rockefeller, who has donated fifty-three million dollars to the uses of the Board. The book tells of the good work that is being done among all classes of the people, including negroes and indians. It is well illustrated and in its narration of an exhibition of sustained

and energetic patriotic and civic pride is worthy of wide-spread attention.

The Principles of Rural Credits, as applied in Europe and as suggested for America, by James B. Morman, with an introduction by John Lee Coulter, Ph.D.; Rural Science Series, L. H. Bailey, editor; 296 pages; 5¼ by 7½ inches; The Macmillan Co., New York.

It is not difficult to believe, as a note accompanying the book says, that the author, James B. Morman, is a practical farmer and a close student of agricultural problems. The work, which is dedicated to the farmers of the United States and Canada, abundantly proves that. The author aims to show how farmers may be successfully financed. He has divided his book into two parts, one telling of the methods adopted in European countries and the other explaining a constructive credit system that might prove advantageous to the farmers of this continent. Two chapters are devoted to "Canada's Progress in Co-operation and Rural Credits" and "Personal and Mortgage Credit for Farmers in Canada." In the first of these chapters a review is given of co-operative legislation and progress in rural credits in each of the provinces, and in the second a survey is taken of the establishment and operation of Alphonse Desjardins' Caisses Populaire, of the farm mortgage credit system in Saskatchewan, and of Hon. Arthur Meighen's Co-operative Credit Societies Bill, passed by the Dominion Parliament in 1914, concluding with a suggestion that the state loan system adopted by Australia and New Zealand might advantageously be taken up by this country. A brief exposition of the Torrens system lends additional interest to a valuable and instructive work.

Electricity for the Farm; light, heat and power by inexpensive methods from the water wheel or farm engine; by Frederick Irving Anderson, author of "The Farmer of To-morrow"; 265 pages; The Macmillan Co. of Canada, Limited; price \$1.25.

In the preface the object of this comprehensive and most instructive work is clearly laid down. It is designed primarily, so the author states, to give the farmer a practical working knowledge of electricity for use as light, heat and power on the farm. The electric generator, the dynamo, is explained in detail with outline illustrations. There are also chapters on electric transmission and house-wiring by which the farm mechanic is enabled to install his own plant without the aid and expense of an expert. There is water power running to waste on many farms that by following

the minute instructions given in this book could be turned to use. As the author further says, the tiny unconsidered brook that waters the farm pasture frequently possesses power enough to supply means, including light and heat, for doing much of the work of the farm and the home. For those not possessing water-power which can be devoted, there are chapters on the use of the farm gasoline engine and wind-mill, in connection with the modern storage battery, as sources of electric current. Several full page illustrations of methods, machinery and appliances, with lists of devices and tables of results, increase the value of the work, which could be read with interest, and probably with profit, by every progressive farmer.

Twentieth Century Impressions of Canada; its history, people, commerce, industries and resources; compiled by Henry J. Boam, F.R.G.S., and edited by Ashley G. Brown and Philip H. Morris; 952 pages; Sells Limited, Fleet St., London, Eng.

In a huge volume purporting practically to give a story of Canada as she is, it would be strange if considerable space was not devoted to agriculture. As it is with the pages limited to 50, or one nineteenth part of the work, it cannot be said that they are any too many. If, however, the publishers or editors, have not been too generous with the number of pages that deal with a subject with the importance of which no other branch of industry can compare, they have at least gone to some of the most knowledgeable exponents of agriculture in the country for contributions. Mr. T. K. Doherty, LL.B., Commissioner of the International Agricultural Institute, for instance, in writing on "Agricultural Organization," reviews the state of agriculture in a governing sense to completion. He explains the different divisions and branches, and briefly sketches the history of the acknowledged associations connected with grain growing, live stock breeding, dairying development, horticulture, entomology, farmers and women's institutes and agricultural co-operation. Professor S. B. McCreedy, Director of Elementary Agricultural Education for Ontario, outlines the Agricultural Instruction Act and refers to the chief educational institutions devoted to agriculture and to the inside and outside, otherwise extension, work that is being done. Mr. O. C. White, Assistant Dominion Field Husbandman, sets forth the advantages of Mixed Farming as compared to the exclusive growing of grain. Mr. W. T. Macoun, Dominion Horticulturist, deals with the status of "The Fruit Industry," stating what is being done in the country as a whole and in the different provinces for its development. Mr. H. S. Arkell, Assistant Live Stock Commissioner, supplies valuable information on The Cattle Industry, statistical and otherwise,

especially with reference to exports and imports and breeding. The Dairy and Cold Storage Commissioner, Mr. J. A. Ruddick, concisely outlines the progress that is being made in dairying, treating particularly of the volume of trade that has been created and its direction. Mr. W. Fawcett Moore devotes a short article on The Poultry Industry mainly to the necessity of judicious breeding. Mr. J. B. Spencer, Editor and Chief of the Publications Branch of the Department of Agriculture, in two pages depicts the importance of The Swine Industry and furnishes statistics showing the variations of the export trade from Canada, the swine slaughtered at inspected establishments since the system of government inspection was inaugurated in 1907, and the number of pedigree registrations made with the National Live Stock Records Board. Other articles are on Grain Growing in a general sense and briefly sketching the work at the Experimental Farms. The big volume is profusely and handsomely illustrated with many full-page combination and other engravings, including portraits of the premiers and lieutenant-governors of the provinces as well as of H.R.H. Prince Arthur of Teck and the Right Hon. Sir Robert Borden, G.C.M.G., P.C., LL.D., K.C., Prime Minister of the Dominion.

Poultry Diseases, by E. J. Wortley, Orange Judd Company, New York City, 5 x 7 1/2 inches, 123 pages, illustrated.

The aim of the author was to put a concise handbook into the hands of poultry raisers who should thus be assisted in determining the various diseases, and in taking the precautionary steps important in preventing the introduction and spread of contagious diseases. No attempt was made to deal exhaustively with the scientific side of the subject. The treatise, while not sufficiently complete for the scientific worker, is particularly well adapted for the use of the ordinary keeper of fowls, in fact it might well have a place in every farmer's library. It points out the importance of the selection of healthy stock, intelligent feeding and proper housing. The work embraces five chapters bearing the following heads:—General Methods of Controlling Disease, Summary of External Symptoms and Treatment, Diseases of Poultry other than Fowls, Diseases and Pests of Fowls and Post Mortem Examinations. The diseases and pests of fowls occupy the greater part of the book. One hundred and seventeen in number they cover practically all the ailments likely to give trouble in the poultry yard. They are treated in alphabetical order and very much to the point, showing in many cases views of characteristic symptoms and other features.

NOTES

Strawberries on the Pacific Coast this year have only been about 60 per cent of a crop.

Registration of 638 males and 1,599 females is reported in Volume IV of the British Holstein-Friesian Cattle Society.

The Department of Agriculture of Prince Edward Island is making arrangements for demonstrations in the marketing and grading of wool.

Mr. J. B. C. Trudel, Provincial Superintendent of cow testing in Quebec, reports that there are now over 600 farms in the province keeping records of production and cost of feed for from 5,000 to 6,000 cows.

In the month of April, according to the report of Mr. E. A. Ray, Trade Commissioner at Birmingham, the export of wheat from Canada to Great Britain, although decreased in quantity, increased in value by £263,335, the export of wheat-meal and flour by £17,974, oats by £18,762, maize by £22,465, bacon by £247,520, hams by £13,689, butter by £7,686, and cheese by £8,814. Barley decreased by £19,666.

A report issued in London on the Irish Pig Breeding Industry shows that the gross annual value of the industry is £8,000,000. There was a decrease in 1914 compared with 1913. Fifty firms employing 3,000 hands are engaged in bacon-curing. Although, Ireland is a pork-raising and bacon exporting country, a considerable amount of American and Danish bacon finds its way there. The labouring classes are said not to be raisers of pigs, as they used to be, but to have taken to rearing poultry.

There are over one thousand flocks of sheep in Manitoba, states Live Stock Association Secretary, George G. Greig, in issuing a circular to all the farmers of the province regarding the grading and marketing of wool, that the Department of Agriculture has undertaken with his supervision. The Department will advance two-thirds of the market value on shipments and pay the balance on sale, retaining one cent a pound to provide for contingencies.

One and a half tons of seed grain have been distributed to farmers in the province of British Columbia by the Department of Agriculture. This quantity was sent out in five-pound lots, which were disposed of at a very low price, with the understanding that each farmer report to the Department at the end of the season. In addition, five hundred samples of three varieties of corn and one and one-quarter tons of mangel seed were distributed by the Farmers' Institutes.

The Manitoba Department of Agriculture has announced that automobiles will tour the province this year in the interests of better farming in the place of the trains operated in past years. Route No. 1 has been scheduled and the full itinerary of this route called for two meetings per day from June 8 to July 1, stops being made, and meetings held, at thirty-nine places. The speakers and subjects were announced to be: Prof. L. J. Smith, silos and farm engineering; lecturer, J. E. Bergey, profitable poultry husbandry; Prof. E. Ward Jones, animal husbandry; Miss Begby, home nursing, and Miss Green, dress-making. The route taken was largely in the district covered by Nelson Smith, District Representative, who accompanied the party and took part in the work.

On July the 7th, 8th and 9th, in Calgary, there was held a conference between the British Columbia fruit growers, fruit growers' associations, shippers and shipping organizations, fruit jobbers and wholesalers, railroad officials and retailers.

The purpose of this convention was to investigate the many unsatisfactory phases of the fruit situation as affecting the various interests, from the grower to the consumer, and to endeavour to correct and adjust conditions as far as possible. The Calgary Board of Trade, as a disinterested body, acted as a medium between all the various interests, from the grower to the ultimate consumer, and is quite confident that satisfactory results will be obtained.

The secretary, Mr. Thomas P. Sutton, extended an invitation to individual fruit growers and farmers, fruit growers' associations, packers and packing organizations, fruit jobbers and wholesalers and their associations, boards of trade, transportation and cartage officials, retailers and consumers and league officials, to attend this convention and be fully prepared to submit arguments and data concerning their own interests.

The Department of Agriculture of Saskatchewan has recently issued for posting on boards at different points notices regarding Care of Young Stock, Winter Rye and Agricultural Society Work as well as a bulletin giving the prices of live stock and wool on May 31 at Winnipeg, Calgary, Toronto, St. Paul and Chicago.

This year before the opening of the Maple season the Pure Maple Sugar and Syrup Co-operative Agricultural Association of Quebec entered into an agreement with The Co-operative Cheesemakers' Association, whereby the latter handled the output of the members of the former association. Mr. Auguste Trudel, the manager of the Cheesemakers' Association, is authority for the following statement of business transacted in maple products:

Maple syrup sold, 4,000 gallons.

Prices: No. 1, \$1.15; No. 2, \$1.05; No. 3, \$1.00.

Maple sugar sold, 13,000 lb.

Prices: No. 1, 10½ cents; No. 2, 10 cents.

Mr. R. Schuyler, District Representative of the Ontario Department of Agriculture for Brant County, in a letter to THE AGRICULTURAL GAZETTE, states that the American Tent Caterpillar is very plentiful throughout the county this year, nearly all of the unsprayed trees having one or more nests in them.

Mr. Schuyler prepared an article on the Tent Caterpillar and published it in the local papers, with the result that many inquiries were received at his office re the pest. Letters were also written to the papers advising farmers to be on the lookout for the Army-worm, of which there was a serious outbreak in the county in 1914.

The product of the thirteen Saskatchewan creameries operated by the government during the winter season of 1914-15 aggregated 255,805 pounds, as against 234,858 pounds during the previous winter, an increase of 20,947 pounds or 9 per cent increase. The extreme shortage and high prices asked for practically all kinds of feed induced many farmers to sell their stock, so that the increase of 21,000 pounds of butter under such conditions, which were by no means confined to any one section of the country, is well worthy of commendation, and indicates clearly that there is no discouragement amongst the dairy farmers of the province, whose prospects are on all sides regarded as satisfactory in every way.

Co-operation in insurance has been tried in England and proved successful. Founded in 1909 the Agricultural and General Co-operative Insurance Society has declared a bonus each year of from 15 to 35 per cent except in 1913, when the losses were exceptionally heavy, but even then all liabilities were met by receipts and a balance carried forward.

Prices of all kinds of meat-stuffs in Scotland had increased in May from 30 to 50 per cent, compared with the quotations that ruled in the same month last year. Because of the high prices and the impossibility of getting supplies from wholesale dealers, between two and three hundred of the smaller butchers in Glasgow are reported to have closed their doors.

The Board of Trade and Fisheries of Great Britain recently issued circulars calling upon farmers not to dispose of their breeding stock, especially of cows and sows, and to increase the acreage as far as possible to be cut for hay. Landowners and farmers were also urged to offer their crops of hay to the military authorities in the first instance.

The Department of Education of Prince Edward Island recognizes that it is never too early to begin. On the front page of a "pen-work" or scribbling book issued under its auspices, is presented a picture of McRae's cow, Milkmaid VII, that in one year gave 16,696 pounds of milk that made 850 pounds of butter. Over the cow which is termed "A valuable Islander," appears the words "Stick to the Farm" and, beneath it, in similarly large letters, "Keep good cows and they'll keep you."

The contents of the Bulletin of Foreign Agricultural Intelligence, for the month of April, 1915, issued from the office of the Canadian Commissioner of the International Institute of Agriculture, cover agricultural matters in many parts of the world. Irrigation in Italy, Forage Crops for Semi-Arid Regions, Variation in the Apple, Scrapie in Sheep, Mixtures for the Destruction of Weeds, Making Baby Beef, Useful Hints about Milking, Common Birds useful to the Farmer, Agricultural Co-operation in South Australia and in the United States and Agricultural Credit in Italy, are among the subjects dealt with. The usual valuable statistics regarding the world's supply of wheat are given.

Co-operative Agricultural credit is making headway in the Punjab, India. The province has a population of twenty million. Village banks were started in 1905-6 by 23 societies with 1,203 members and a working capital of 2,840 pounds. In 1913-14 the societies numbered 3,333 and the members 160,892, while the working capital was 1,228,660 pounds. The interest on deposits is 6 per cent and on loans 12½ per cent. The latter appears high, but, prior to the establishment of these banks, money for agricultural purposes was unprocurable below 18, 24 or even 36 per cent.

Referring to the decline of the meat supply in Great Britain *The Scottish Farmer* says that, however the figures may be manipulated, the broad fact has to be faced that, war or no war, the meat supply of the world is short, and while the war lasts it will be shorter. "Large quantities of frozen boneless meat," the paper adds, "used to come to Glasgow for the manufacture of sausages. During last year none came, and in its place a big trade was done in ancient emaciated cows from the Emerald Isle . . . Many of these cows were twenty years old . . . Another feature of the trade during last winter was the large number of pregnant cows slaughtered."

Wm. J. Bonavia, Secretary, Department of Agriculture in British Columbia, has recently sent to the secretaries of Farmers' Institutes a copy of the Noxious Weeds' Act, 1915, which has been revised at the recent session of the Provincial Legislature, together with a circular letter pointing out the following chief alterations:

1. Destruction of weeds to be within seven days of date of notice.
2. Where noxious weeds are found growing on non-resident lands, that is, lands that are unoccupied and owned by non-resident owners, the Inspector may proceed to destroy such weeds without notice, the expenses incurred being assessed as taxes.
3. A detailed statement as to expenses incurred in cutting weeds, verified by statutory declaration, and forwarded to the Hon. Minister of Finance and Agriculture, the local Government Agent, or Municipal Clerk, after being duly audited, shall be evidence that the sums have been duly expended and are assessable as taxed.
4. The penalties for non-compliance with notice to cut weeds have been materially increased, the minimum fine being not less than \$25.00, to be recovered with costs under the "Summary Convictions Act."

Sales held at Calgary and Lacombe recently under the auspices of the Alberta Cattle Breeders' Association show considerable variation in prices compared with those held last year. At Calgary the average brought by 336 animals (213 Shorthorns, 86 Herefords, 30 Angus, 1 Ayrshire and 6 Holsteins) was \$159.53 this year against \$186.65 for 203 animals last year. At Lacombe, where heavy and continuous rain made the conditions unfavourable, the average for 73 animals this year was \$152.53 against \$157.47 for 51 animals last year. Shorthorns showed a decline in price at Calgary from \$168.70 to \$146.38, but at Lacombe they showed an increase from \$158.71 to \$172.60. Herefords declined in value at both centres, but Angus were steady at Calgary and at Lacombe 14 sold for \$122.14 against 5 for \$75 per head in 1914.

Efforts are being made by the provincial department of agriculture of Nova Scotia to organize the out-lying settlements. Where sufficient capital is not forthcoming to erect a creamery a demonstration creamery is being established with the understanding that when it is made financially successful, it will be taken off the hands of the Department. To a limited extent the same idea is being carried out as regards small wheat and feed mills. Principal Cumming, Secretary of Agriculture, Dairy Superintendent W. A. MacKay and H. S. Cunningham, Cape Breton County Agricultural Representative, have the matter in hand and at Baddeck, C.B., and Scotsburn, Loch Katrine, Yarmouth and elsewhere report gratifying success. Their latest attention has been directed to the Margaree country, where six meetings have recently been held with an average attendance of 75.

Under what is known in Great Britain as the Development Fund, "Advisory Officers" are being appointed whose duty it will be to supply information and advice on the principles and practice of subjects that require special study, to investigate, or to arrange for the investigation of those subjects, keep in touch with the progress of agricultural research and to endeavour to ensure that new scientific discoveries do actually benefit the farmers of the district. These are in addition to the "County Organizers", who advise on the general principles of agriculture, arrange for investigation of local problems, and aid in scientific research on agriculture and on diseases of plants and animals, with the object of improving the quality of the information available for agriculturists in their particular districts.

The Magazine Guardian of Charlottetown has recently opened a Women's Institute section, the matter for which will be furnished by Mrs. A. E. Dunbrack, Supervisor of Women's Institutes in the province. The institutes in Prince Edward Island now number 32 and to the members of these and all women interested in the movement, this new section should prove of exceptional value.

Professor S. B. McCready, B.A., has resigned his position as director of elementary agricultural instruction in the Department of Education of Ontario. Mr. McCready's resignation took effect on July 1st. Mr. McCready was appointed professor of botany and entomology at the Ontario Agricultural College in 1907 to succeed Professor W. Lochhead, the latter joining the staff of Macdonald College. Later, Professor McCready became professor of nature study and had charge of the class of teachers in training. This latter work grew in extent and value to such a degree that the provincial Department of Education appointed him director of elementary agricultural instruction. Because of his fitness for this work and his enthusiasm in it Professor McCready's retirement will be keenly regretted by hundreds of teachers throughout the province. He proposes to take a well-earned rest before deciding on his future line of work.

"I am confident that the time is not far distant when the annual fair will represent something better than a mere exhibition of live stock and agricultural and domestic products. The annual exhibition should be an institution that represents something of the highest that can be shown of the type of rural civilization that is found in the community. To that end every representative unit in the community should be enlisted. The pastor of the church should be asked to make an exhibit of what he thinks is his best equipment of methods for community uplift. The school teacher should be encouraged to make her exhibit of the embodiment of practice which makes for educated minds, disciplined and orderly. So with the banker, the blacksmith, the tailor, the hotelkeeper, and the homemaker, as well as the tiller of the soil and the stockman. Monetary rewards might be abolished and merit recognized by diplomas. The community spirit should be fostered, and the idea inculcated that all personal effort is essentially for the community whether it be conceived in selfishness or pure altruism." —S. E. Greenway, *Director Agricultural Extension for Saskatchewan.*

Mr. F. S. Grisdale, B.S.A., has been appointed principal of the School of Agriculture at Vermilion, Alberta, succeeding Mr. E. A. Howes who has been appointed Dean of the Faculty of Agriculture in the University of Alberta. Mr. Grisdale, who is brother of the director of experimental farms, is a graduate of Macdonald College. After graduating he was for one year assistant to the superintendent of the experimental station at Lethbridge. During that time he had charge of some special cultural investigation work at each of the prairie experimental farms and stations. He then spent a year on the staff of the "Nor-West Farmer," where he gave special attention to livestock matters. For the past two years he has occupied the position of agriculturist at the school of agriculture and demonstration farm at Olds, Alberta, where he has done considerable teaching.

In a well-studied-out article in "Canadian Farm" on "A Sane View of Public School Agriculture," J. McCaig, of the Department of Education, Edmonton, points out the necessity for thoroughness in teaching, and then suggests that the following are a few things that should be kept in mind:—

1. Being an applied science, it is dynamic in aspect, and is, for this reason, an attractive subject for elementary schools.
2. It is of little use unless given laboratory treatment in field, garden, and school-room.
3. There is no difficulty in making it so. No purchased equipment is necessary, and the materials are right at hand.
4. All people are finally and ultimately rurally-minded, whether they live in the city or the country.
5. The essential things about soils and plants can be taught as well in the city as in the country.
6. Educational changes are put into form not by laymen, but by trained leaders and thinkers, who have a large educational setting into which to fit subjects and harmonize them.
7. Teachers require greater help in subjects like agriculture than they do in such subjects as grammar and arithmetic, which are ingrained in their experience.
8. Agriculture should be a compulsory subject in the high school for those who are going to train for teachers.
9. It is the subject above all on the public school course that gives vitality and interest to study by its connection with real concerns.

The Manitoba Department of Agriculture has announced its full schedule of Boys' and Girls' club fairs. The fairs, fifty in all, will be held from September 21st to October 9th, and in these over 5,500 boys and girls will participate. From six to twenty-five schools will take part in a single fair.

Karakul Sheep. "Sheep farming in New Brunswick promises to rival fox farming in Prince Edward Island," writes S. J. Shanklin, R. R. 1., St. John county, N.B., in the Census and Statistics Monthly for May. "Companies are being formed and a start made in producing Persian lamb fur. A company has been formed in St. Martin's, St. John county; they are raising foxes, raccoons and sheep. They imported one Karakul ewe and Karakul ram; the lamb now a few weeks old they value at \$2,000. The lambs from the Karakul ram and pure bred Lincoln and Cotswold ewes (all the lambs shining black) they value at some \$200 each. The ewes were purchased in Ontario last fall. The lambs, some forty in number, at present are being kept for breeding purposes. I think this industry promises good returns. The lambs will not be killed for the fur for some time, or until the supply for breeding purposes is filled up."

Wisconsin is giving attention to the question of farm credit. A bulletin recently issued, by the Agricultural Experiment Station, describes "The Ashland Dairy Plan." In the spring of 1913 the Wisconsin State Bank of Ashland purchased some high-class dairy cows, which they sold to farmers with the understanding that they were to be paid for by one half the amount received each month for the product of the cow, interest at 6 per cent being charged. All a farmer has to do is to sign an application to the bank. A committee of business men become responsible for the loan. Two trustees representing the bank pass on the application and, with the assistance of an agricultural college official, purchase the cows. Another system is carried out at Superior by what is known as the Rotary Club, which, through three trustees, becomes responsible to the bank, buys and sells the cows and accepts payment at the rate of \$3 per month each cow, including interest at the rate of 7 per cent per annum, 6 per cent of which goes to the bank and 1 per cent to the club to meet expenses. An additional charge of \$2 per head per annum is made for insurance. One of the virtues of both systems is that the farmer is protected from making a poor bargain.

A Press Letter of the University of Arizona College of Agriculture, publishes the rules governing the Arizona Pig Club for 1915. These rules state that the contestants shall be over ten years of age and under nineteen; each member must secure a pig six to eight weeks old at beginning of contest, feed and care for it throughout a continuous period until it is eight months old; pig entered must be accurately described as to breed, colour, age, weight, markings, etc.; records must be kept in such a shape that a report can be rendered at any time. In addition, each member shall agree to make a special study of the feeding and care of pigs, with special attention to the literature distributed from the Arizona College of Agriculture and the United States Department of Agriculture. Prizes shall be awarded on the following basis: Rate of gain per day; cost of grain; care of pigs; score record of pigs; and story of production and records. Encouragement is given to the contestants through the fact that they shall compete for national, state, county and local prizes.

The Department of Agriculture of the province of Alberta is, this year, operating a "Better Farming" train. The train will consist of twelve cars. Two of these will carry livestock consisting of draft horses, beef cattle, dual purpose and dairy cattle. Two others will contain models of buildings for the housing of cattle, horses, sheep and swine. Dairying and poultry interests will occupy one car, the exhibit consisting of farm dairy machinery and equipment, butter samples and grades; poultry buildings and fittings, including brooders, incubators, etc. Another car will display the work of boys and girls at the agricultural schools, another will contain mounted specimens of game, another will be fitted up for cooking demonstrations, one will be used for general lecture purposes, while grains, fodders and weeds will occupy one car. Lecturers, including Hon. Duncan Marshall, Minister of Agriculture; H. A. Craig, Deputy Minister of Agriculture; E. A. Howes, Dean of the Faculty of Agriculture, and many others from the department and schools of agriculture, will accompany the train, and the subjects dealt with will include judging, breeding, feeding and managing live stock; veterinary care of livestock; the preparation and marketing of wool, marketing of butter, eggs and poultry, and game conservation. For the women, lectures will be given in cooking; sewing, home nursing and sanitation. The Dominion Government and the railway companies are co-operating with the Provincial Department and the itinerary, lasting about six weeks, will extend from the southern boundary of the province to the Peace River crossing.

Through the co-operation of the Saskatchewan Department of Agriculture and the Canadian Credit Men's Trust Association, a movement has been arranged whereby boys in Saskatchewan, 14 years of age or over residing on farms within municipalities employing agricultural secretaries, may come to a camp at the larger exhibitions of the province and there be given competitions. At these camps a certain programme of competitions in stock judging, grain judging, and plant identification will be conducted, ten boys from each municipality being taken as a team. Demonstrations by capable men will precede each competition. The team making the highest total scores in five competitions will receive a shield. This year, it is expected that over 500 boys will be camped at the provincial fair in Regina.

In a letter to THE AGRICULTURAL GAZETTE President W. J. Black of the Manitoba Agricultural College writes as follows with reference to the milking regulations of that institution:—

"Not having any prescribed set of rules for milkers, it has been our custom hitherto for one of the instructors in animal husbandry to personally instruct the dairy herdsman in the most approved methods of milking and handling of milk, and by frequent visitations during milking time to see that the work is carried out quite in accordance with such instructions.

"The method of procedure is, briefly, as follows:—

The cows are well groomed once each day.

All fodder is fed after milking, hence avoiding excess of dust in the atmosphere at this time.

The udders and flanks of all cows are wiped with a damp cloth previous to milking.

Milkers must milk with dry hands and wash same after each milking.

The small-top milk pail is in use.

All milk is sieved through two thicknesses of cheese cloth and is immediately cooled by placing the cans in running cold water.

Perfect cleanliness is observed in the dairy and stable at all times.

The atmosphere of the stable is kept pure by good ventilation and frequent spraying of the gutters and passages with a disinfectant.

All milk pails and other dairy utensils are thoroughly washed and sterilized.

The mixed milk is ever pure as to flavour, and this we directly attribute to the methods employed."

PRESERVE OUR FLOCKS AND HERDS!

MAINTAIN OUR MEAT SUPPLY!

Under the above headings the British Board of Agriculture and Fisheries has issued the following advice to the farmers of the United Kingdom:—

Do not send breeding and immature stock to the butcher simply because prices are attractive now.

Do not market half-finished animals; it is wasteful of the country's resources and is against your own interest.

Do not kill calves; rear them; it is well worth it.

Do not reduce your stock; when you cannot buy stores, buy calves.

Maintain your flocks and breed your sows; it will pay you to do so.

LOOK TO THE FUTURE!

There has recently been issued the Report of the Educational Commission of the State of Vermont. This commission's recommendations respecting vocational education are summarized as follows:—

1. The instruction in the public schools to be of that character to educate the youth towards the occupations of the communities in which they live.
2. The establishment in the junior high schools of semi-vocational courses offering opportunities for instruction in commercial subjects, domestic science, manual training, and agriculture, appropriate to the needs and environment of the particular school.
3. The establishment in the senior high schools of high grade courses in agriculture, together with courses in manual training, commercial subjects and domestic science.
4. The strengthening of the equipment and teaching staff of the State Agricultural School and the increase of its appropriations and the development therein of courses in manual training, incident to agricultural training, and in some measure fitting for the pursuit of the manual trades as vocations.
5. State appropriations to the State Agricultural College for the purpose of: (a) Training teachers in agriculture for the high schools; (b) Co-operating with the federal extension work in agriculture.

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The Seed Branch. Commissioner, George H. Clark, B.S.A.

Encourages the production and use of superior seed, the production of farm and garden crops, tests seeds for farmers and seed merchants and administers the Seed Control Act.

The Live Stock Branch. Commissioner, John Bright.

Encourages and assists the development of the live stock industry.

The Health of Animals Branch. Veterinary Director General, Frederick Torrance, B.A., D.V.S.

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Entomological Branch. Dominion Entomologist, C. Gordon Hewitt, D.Sc.

Conducts investigations on insects in relation to agriculture, encourages the use of methods of prevention and control and administers the Insects and Pests Section of the Destructive Insect and Pest Act.

The Fruit Branch. Commissioner, Donald Johnson.

Encourages the development of the fruit industry along commercial lines. Also administers Part IX of the Inspection and Sale Act, relating to fruit and fruit packages.

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Supplies Institute at Rome statistics and official information respecting agriculture in Canada and distributes in Canada, in the Bulletin of Foreign Agricultural Intelligence, corresponding information from fifty-two adhering countries.

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